

THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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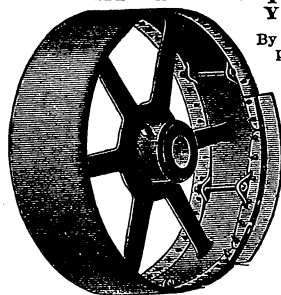
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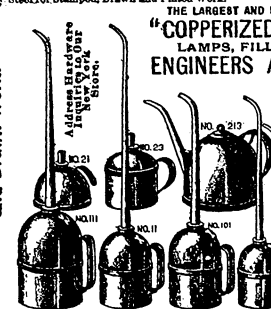
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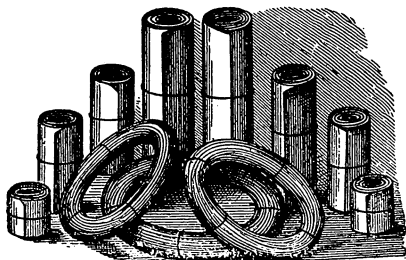
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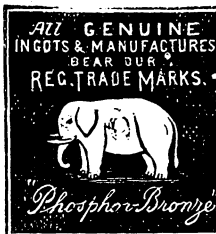
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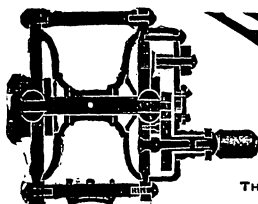
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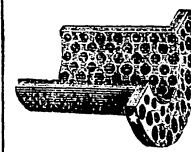
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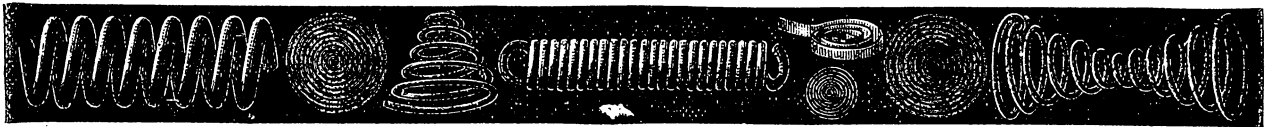
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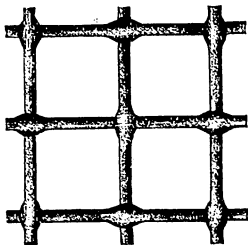
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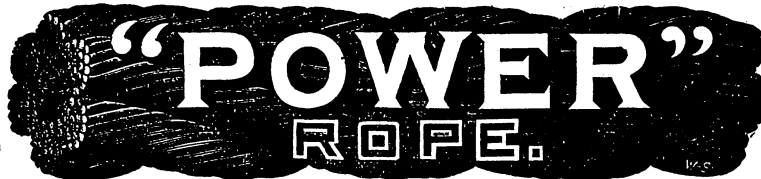
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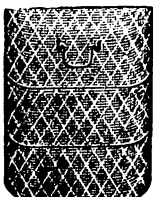
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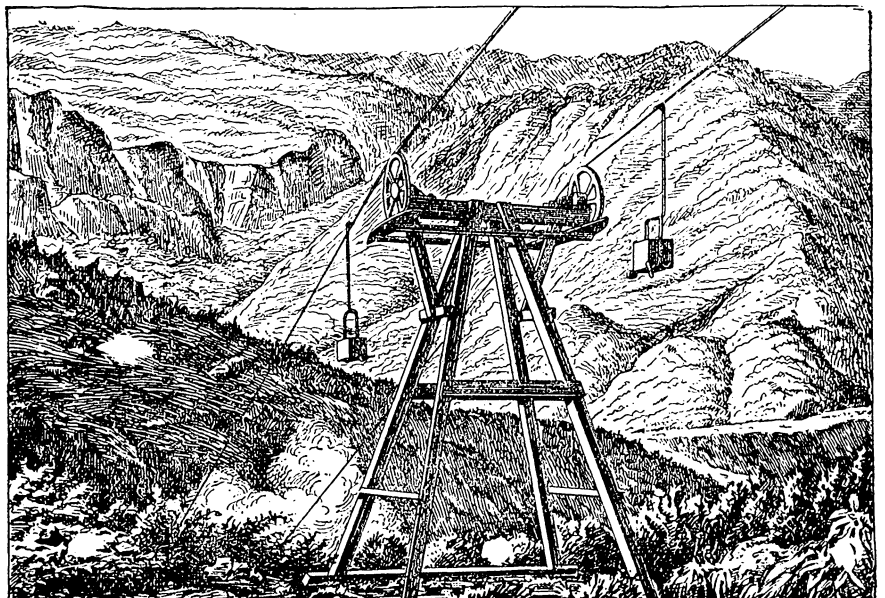


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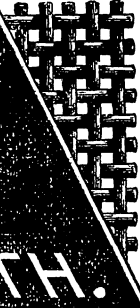
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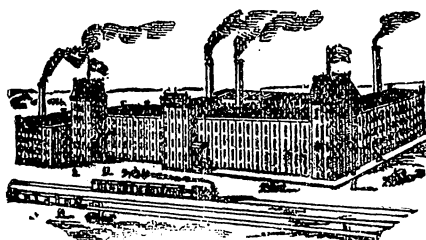
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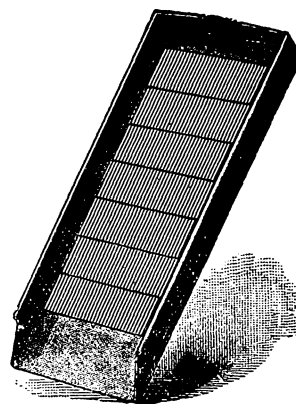
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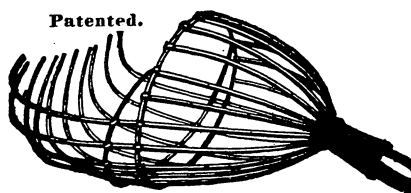


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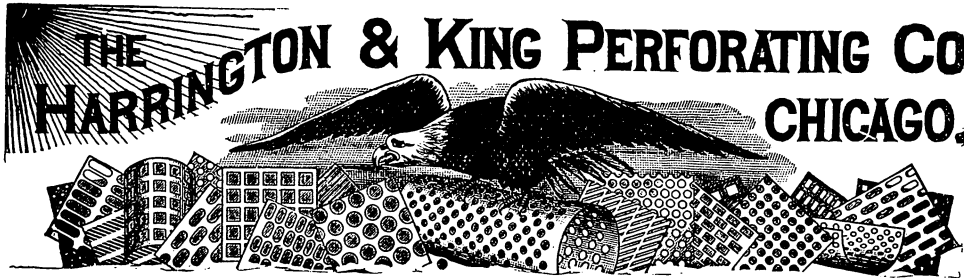
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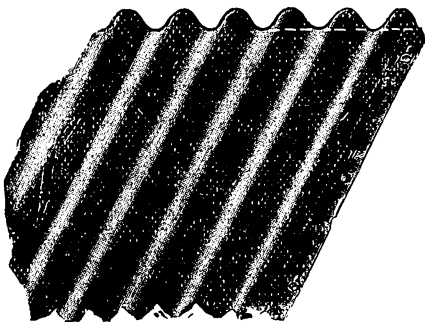
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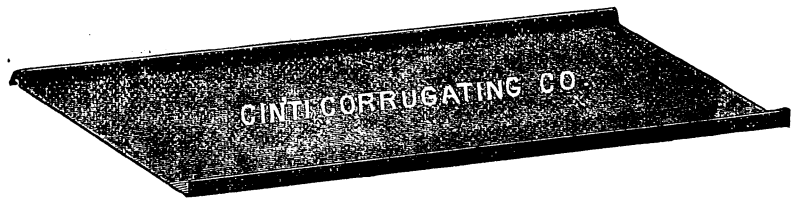
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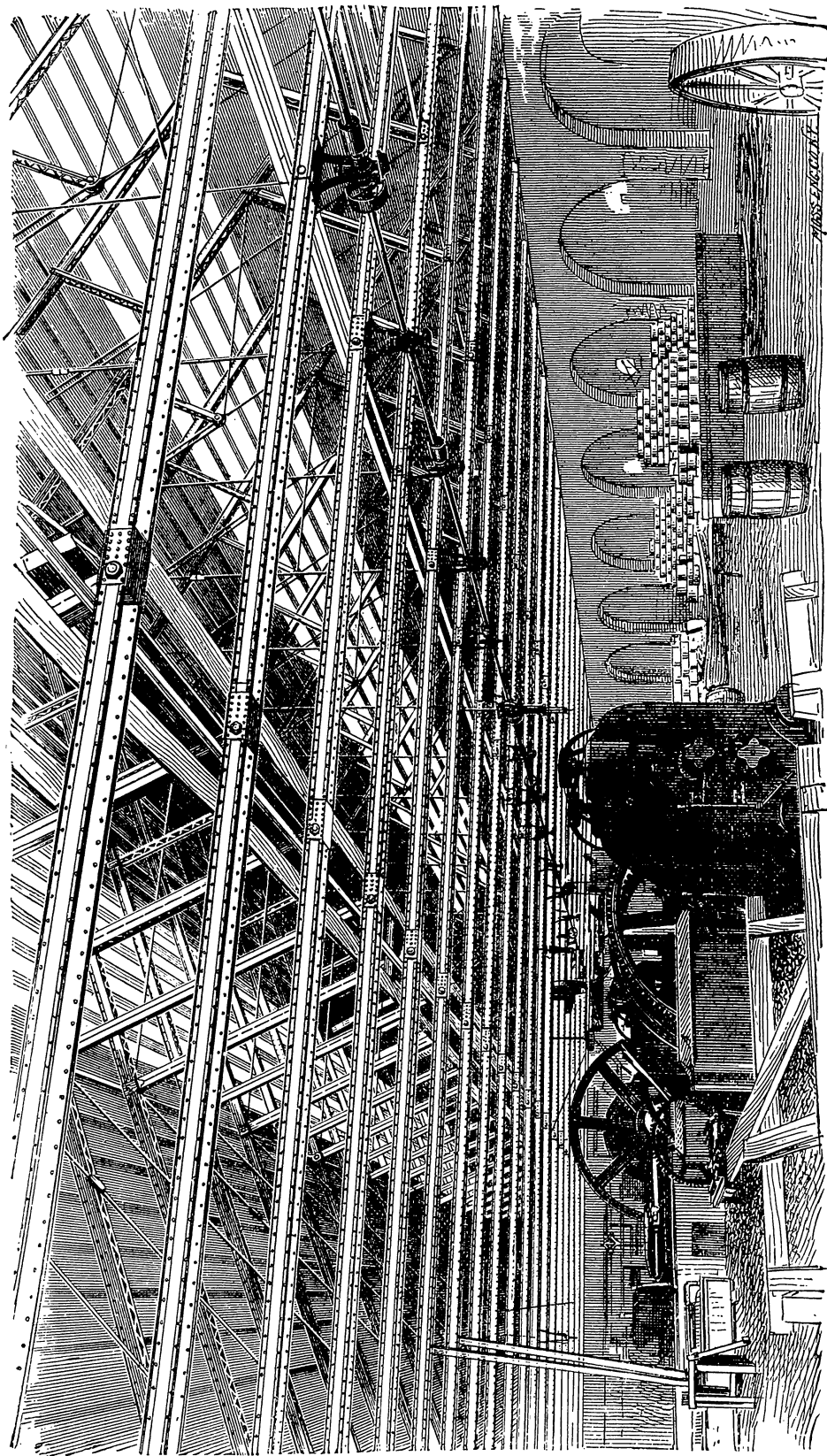
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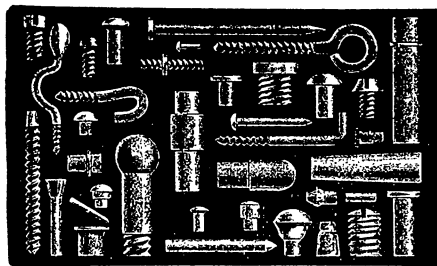
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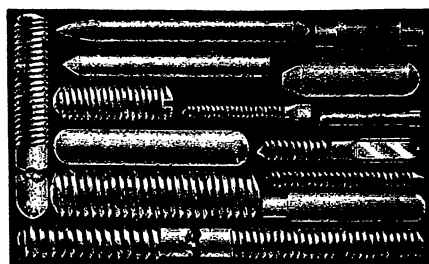
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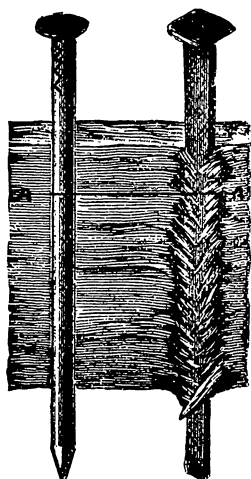
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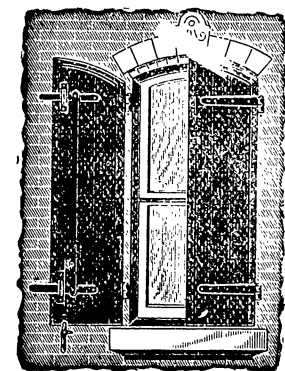
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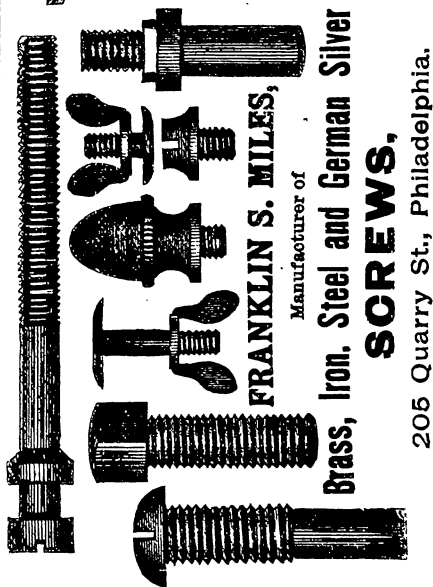
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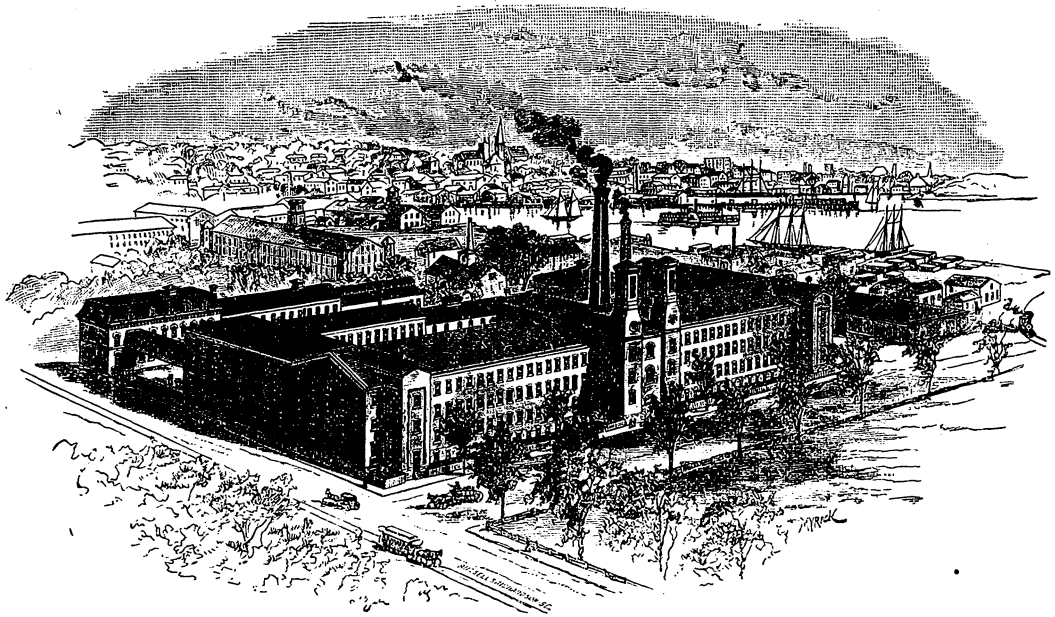
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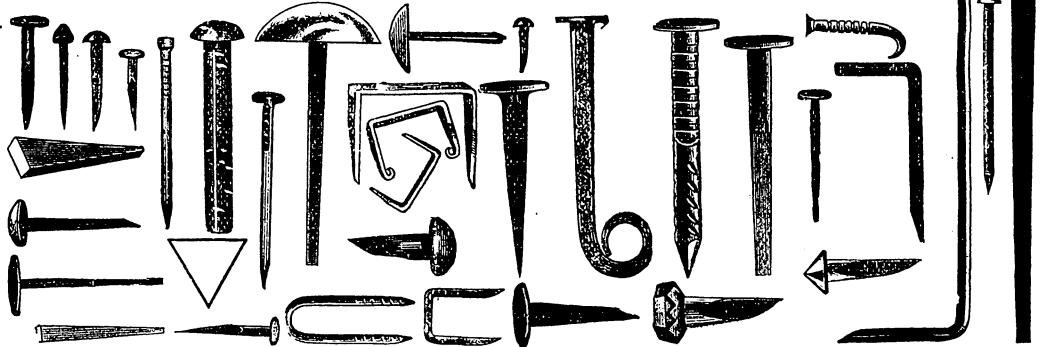
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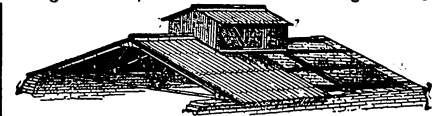
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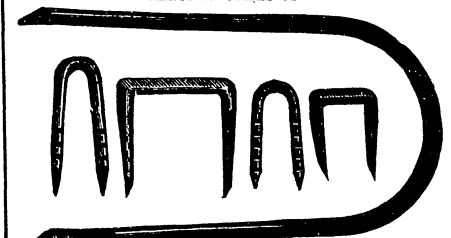


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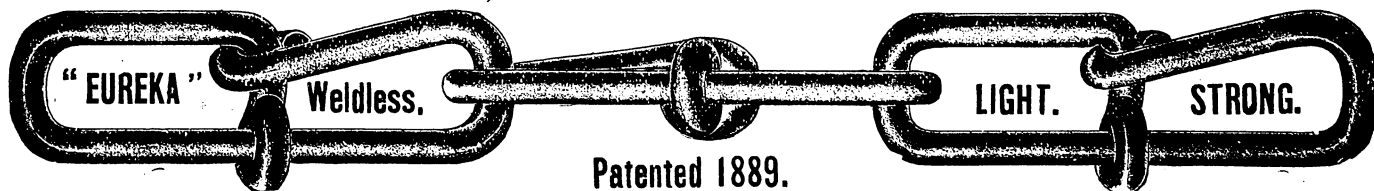
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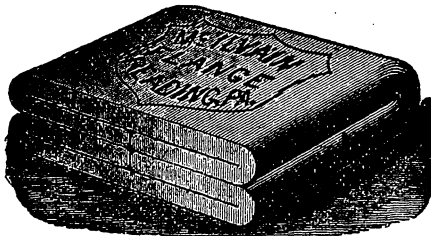
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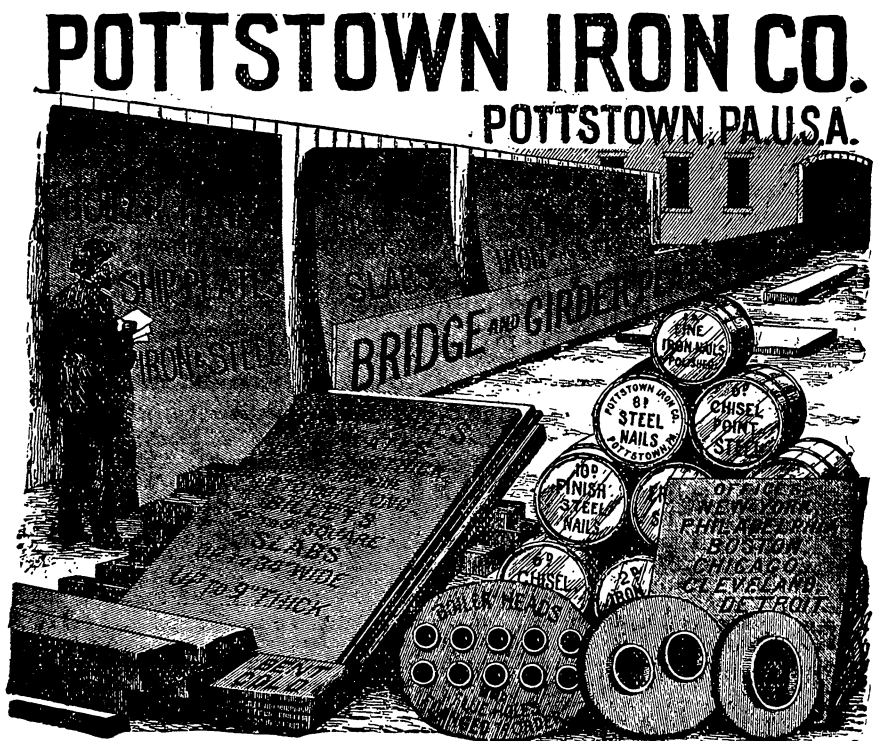
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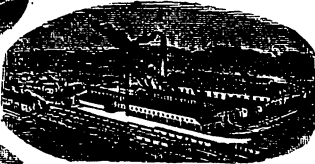
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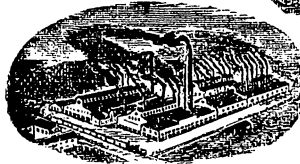
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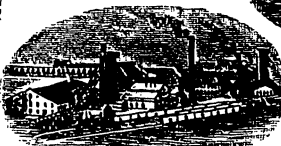
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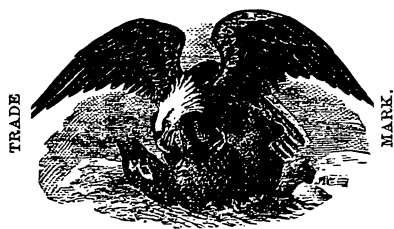
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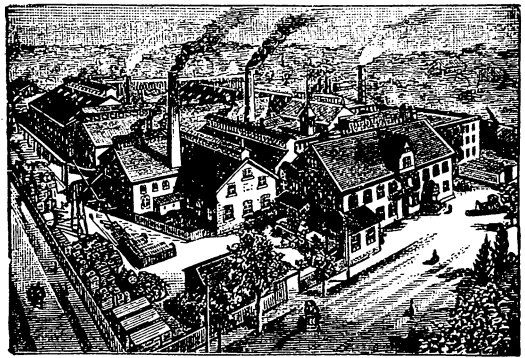
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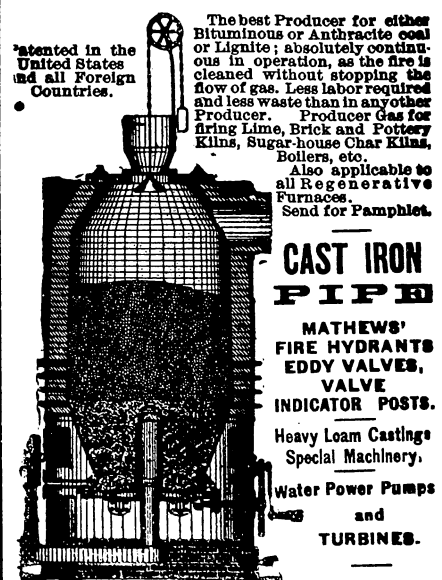
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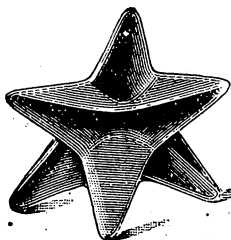
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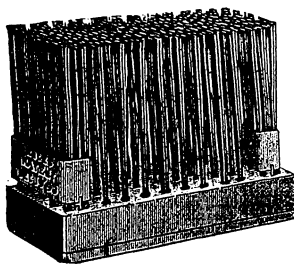
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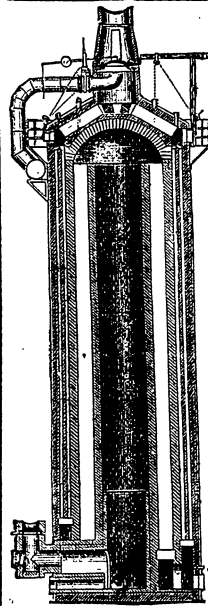
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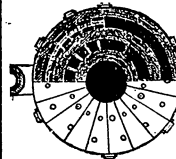
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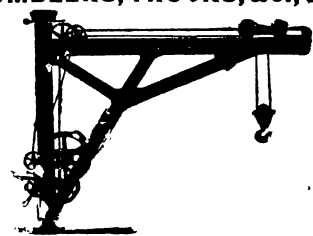


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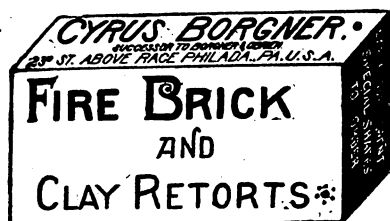
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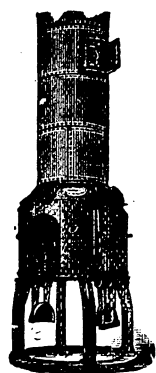
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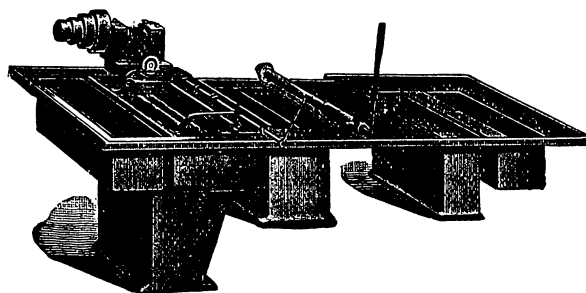
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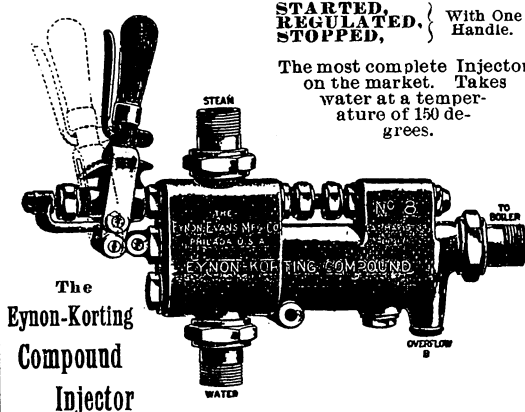
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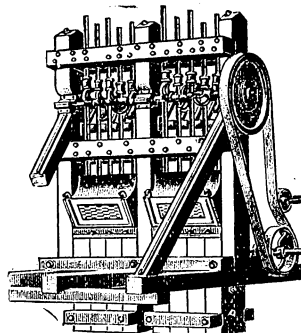
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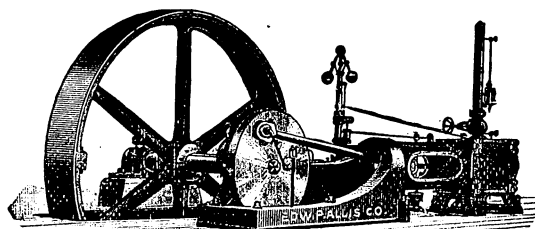
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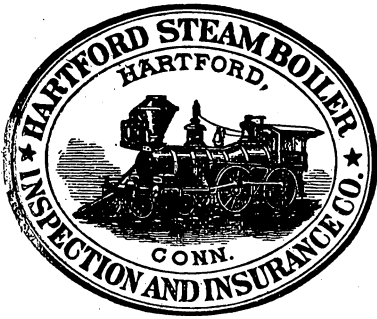
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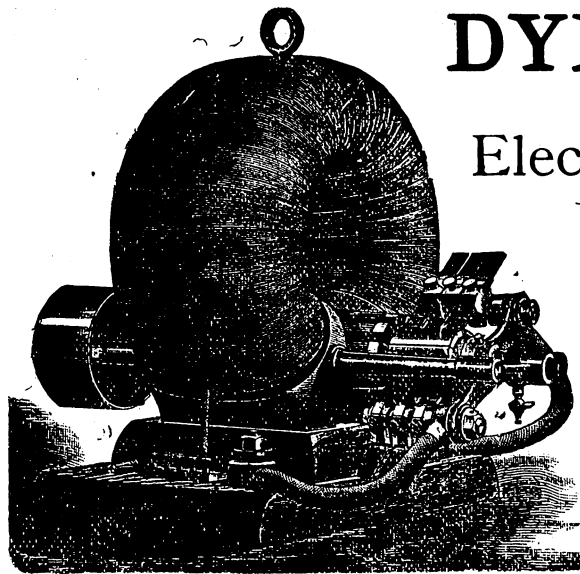
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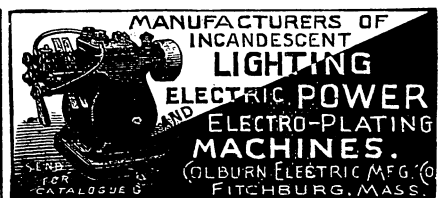
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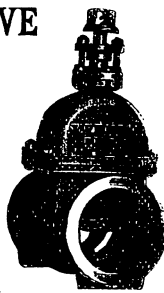
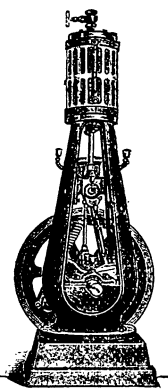
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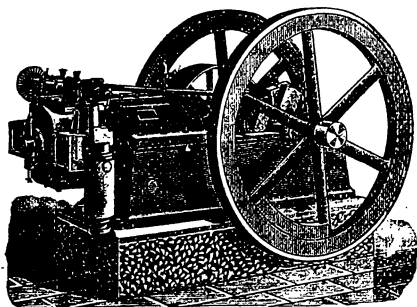
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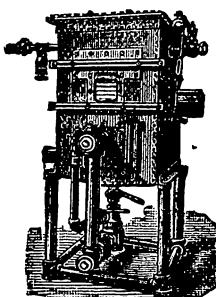
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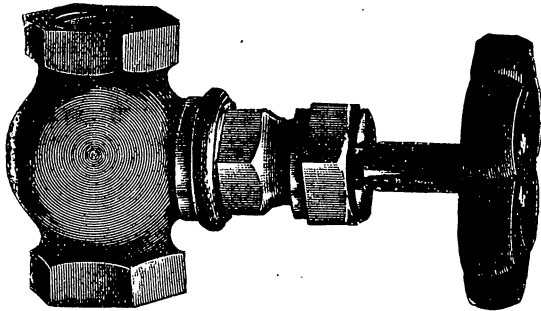
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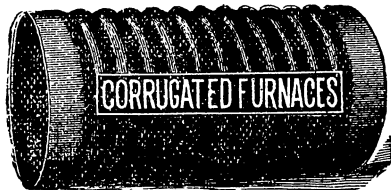
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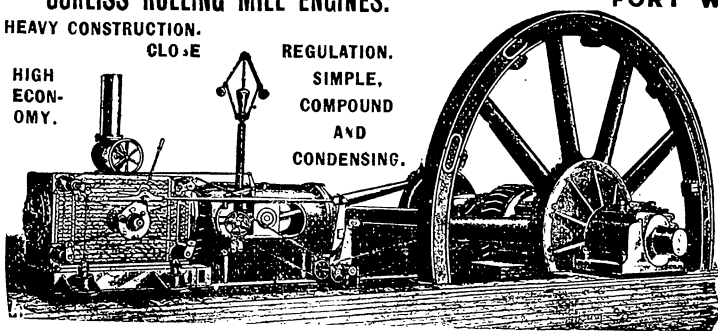
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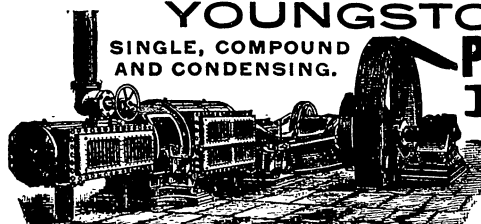
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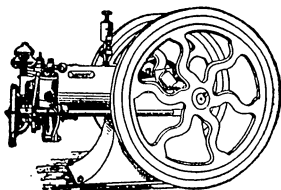
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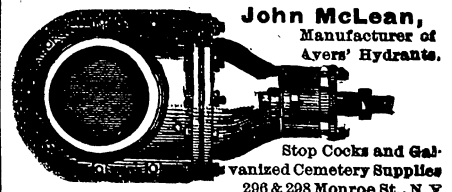
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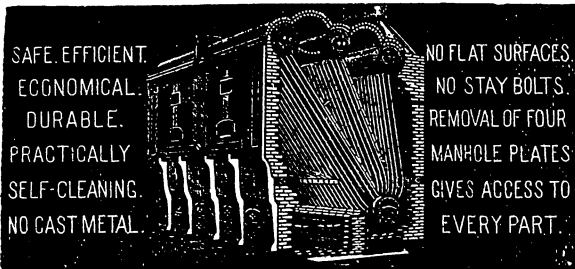
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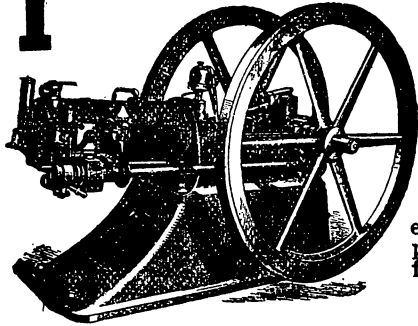


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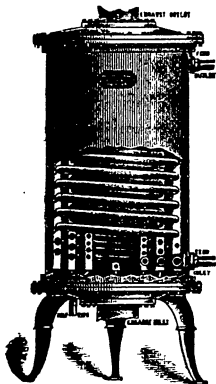
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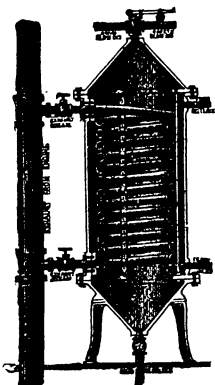


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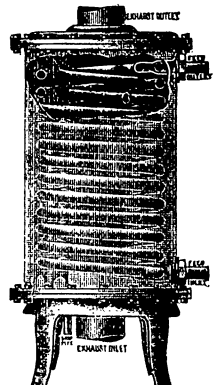
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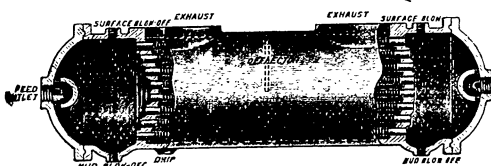
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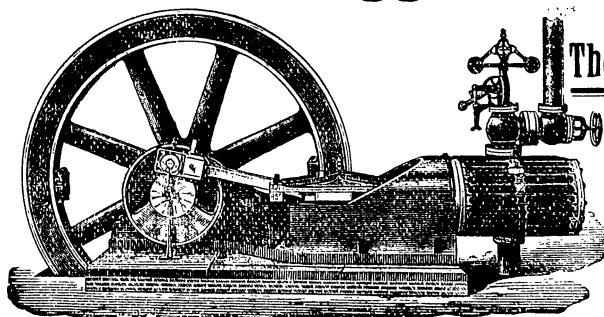
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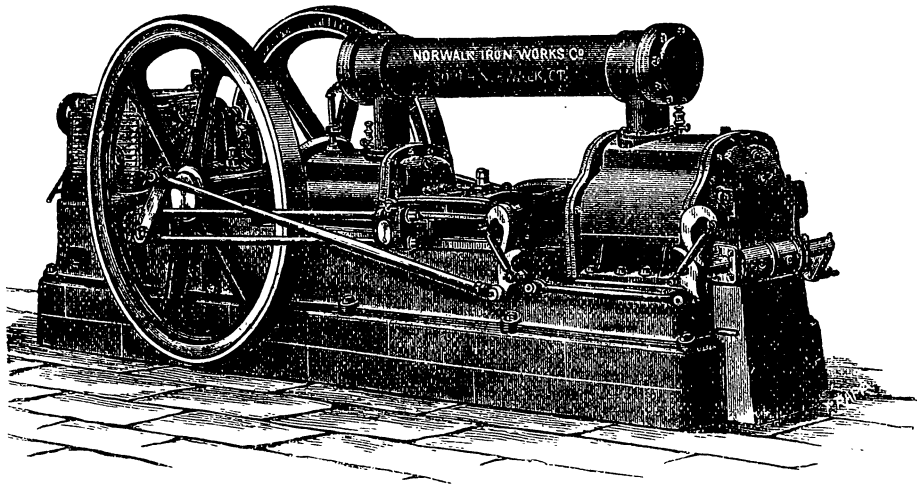
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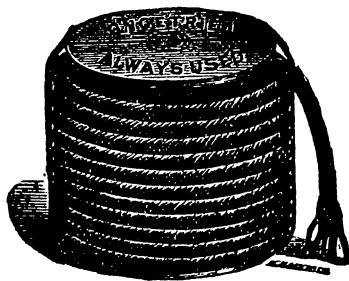
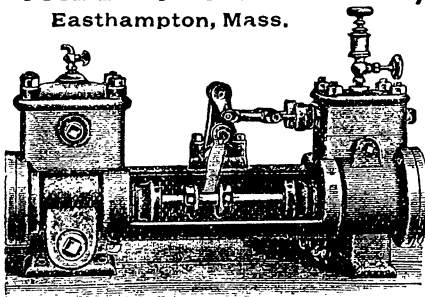


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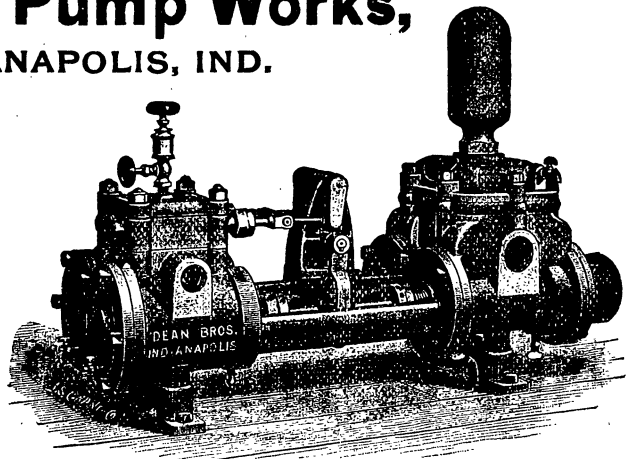
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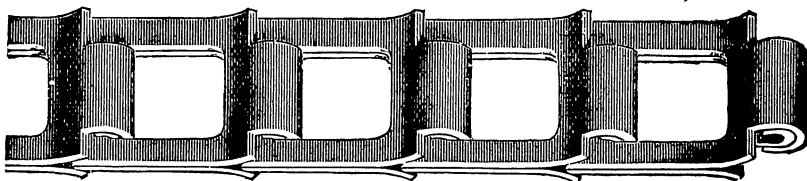
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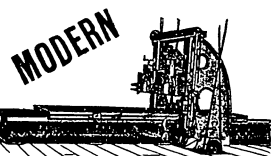
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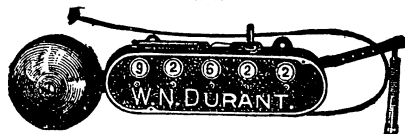
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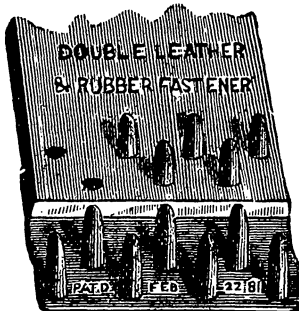
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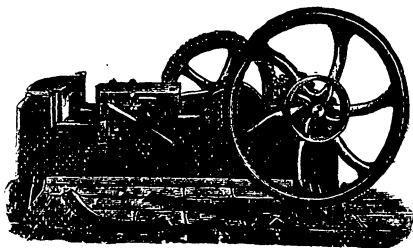
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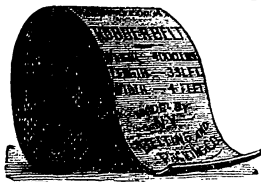


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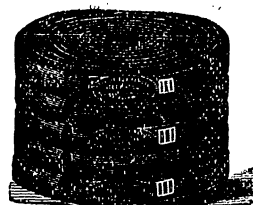


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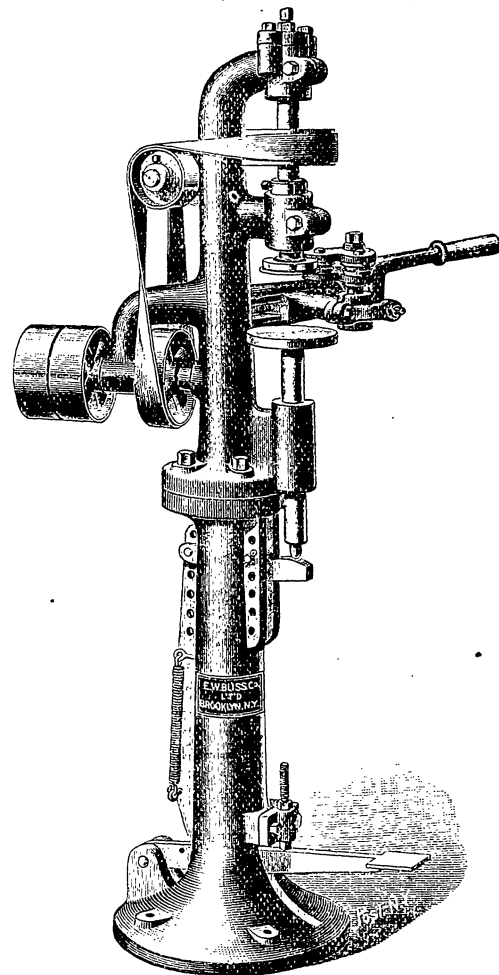
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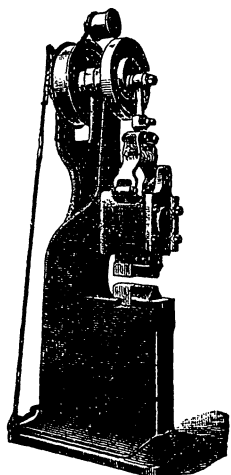
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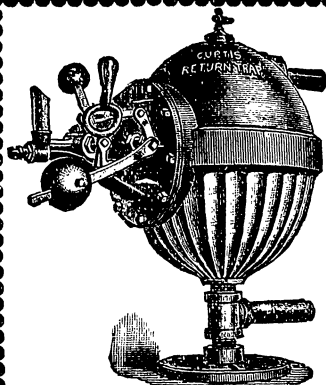
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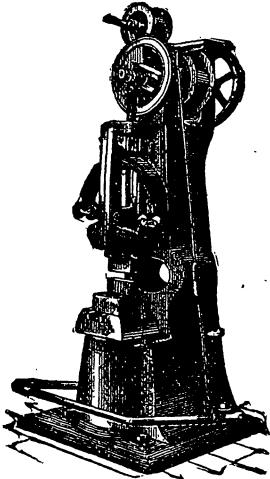
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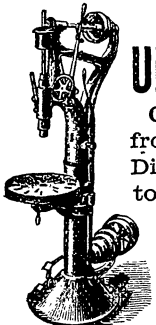
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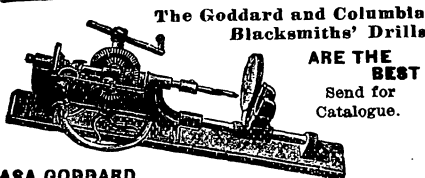


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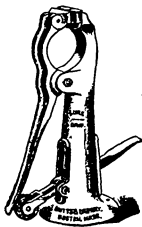
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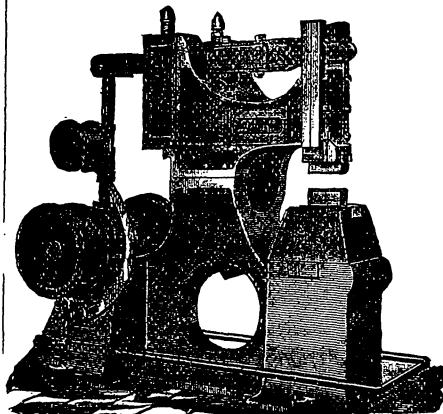
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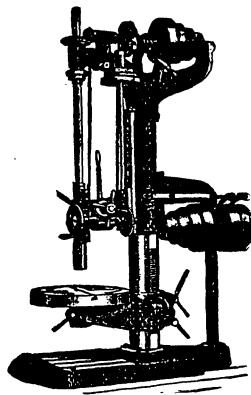
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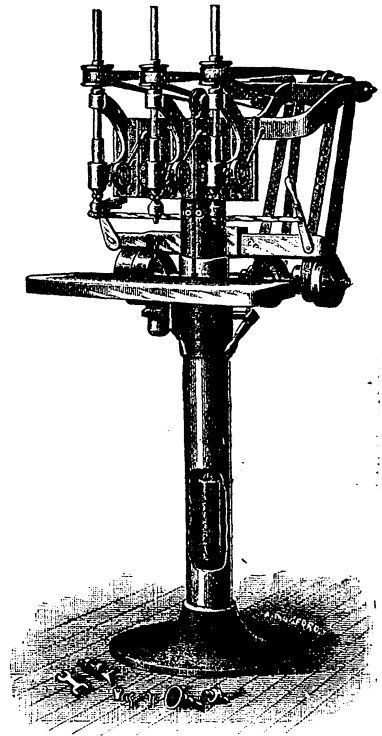
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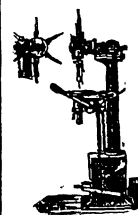
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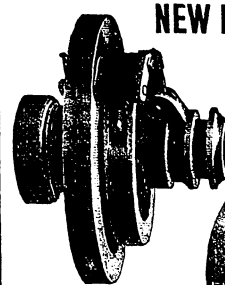
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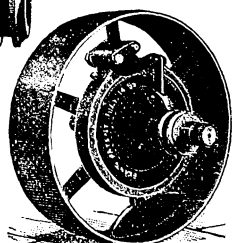


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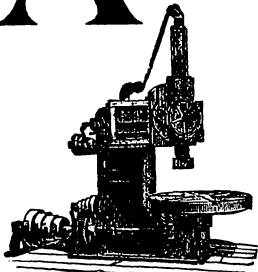
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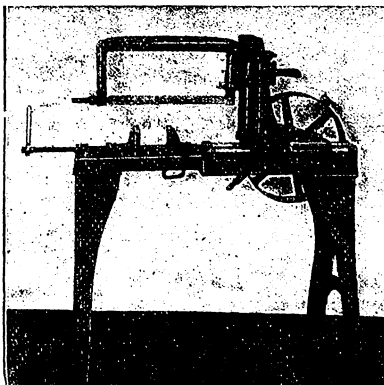
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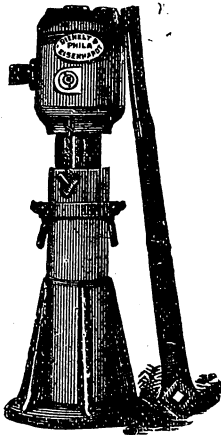
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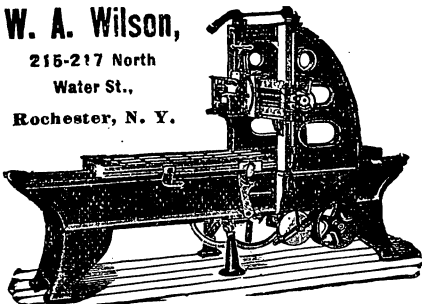
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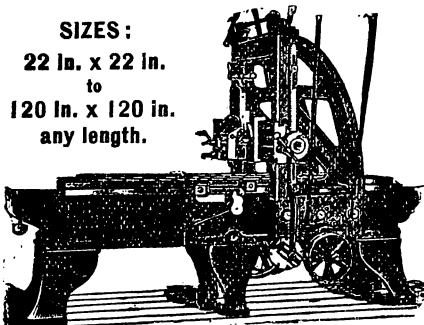
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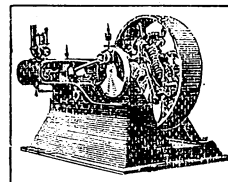
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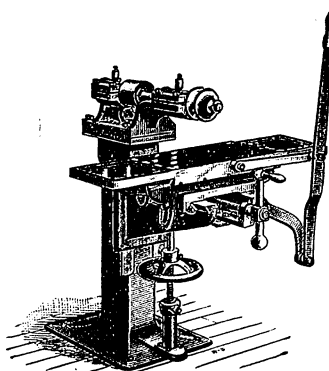
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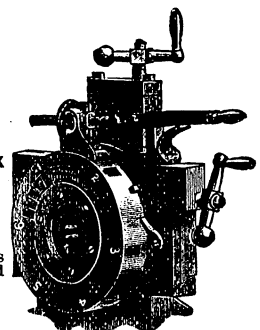
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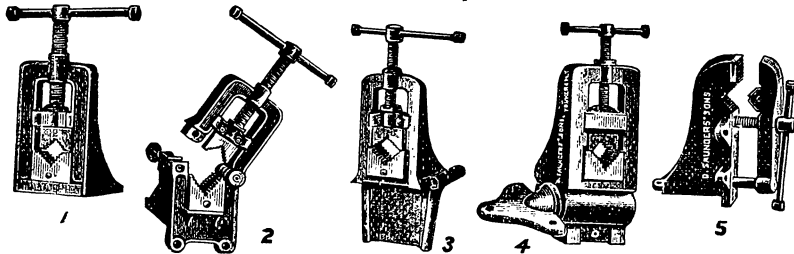
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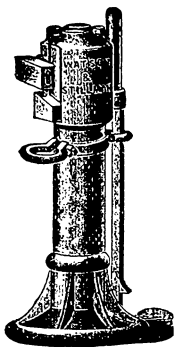
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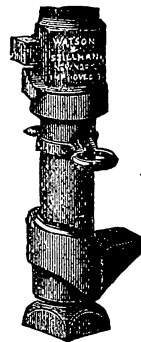
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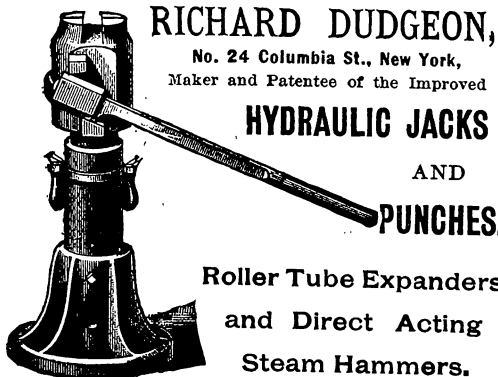
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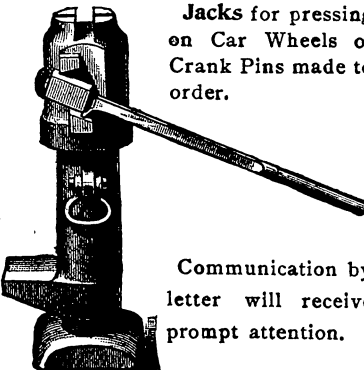
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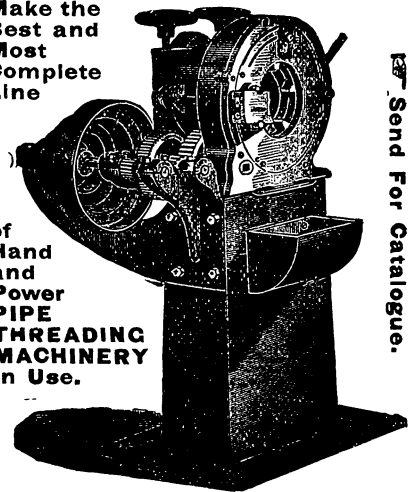
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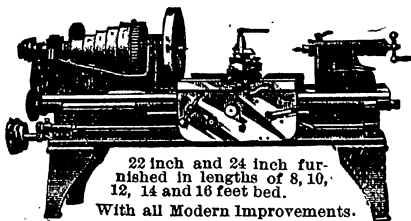
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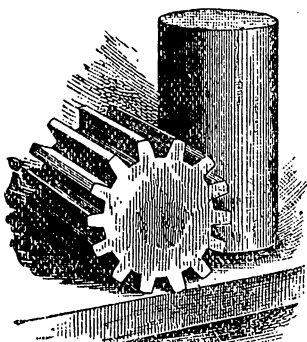
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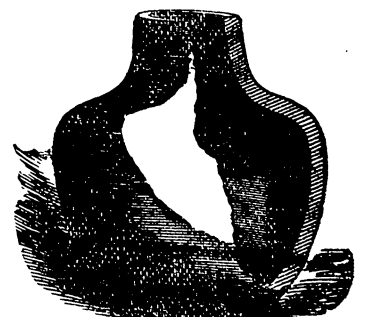
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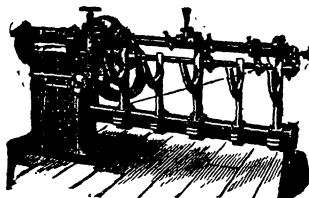
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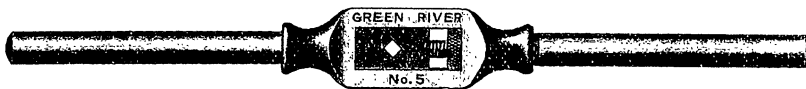
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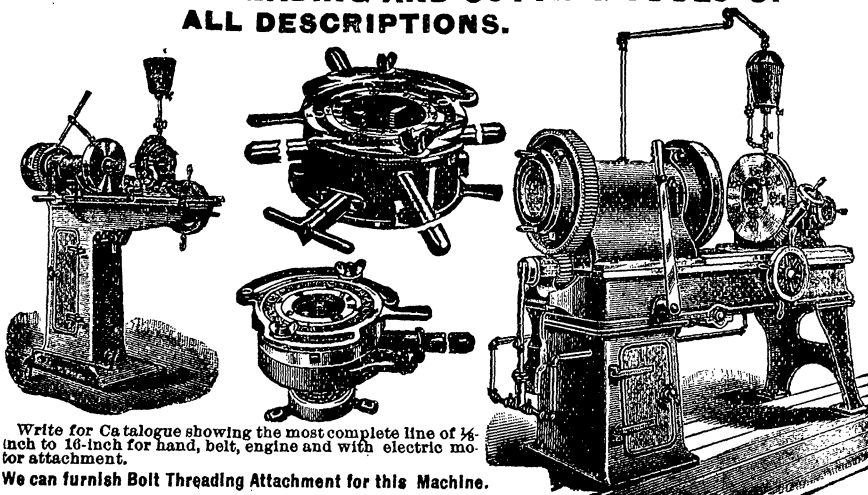
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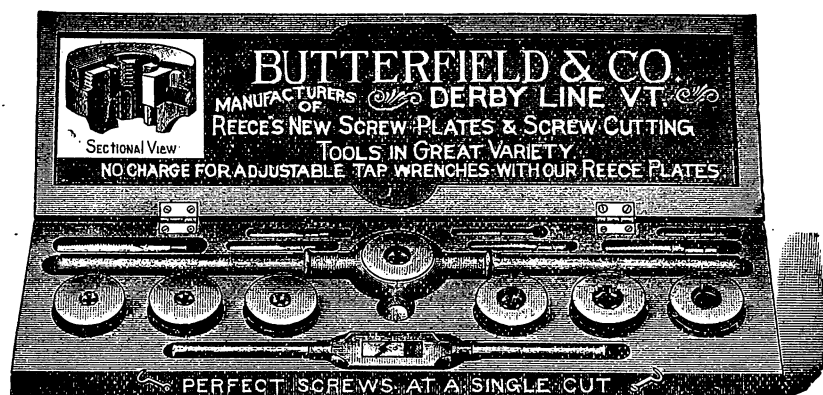
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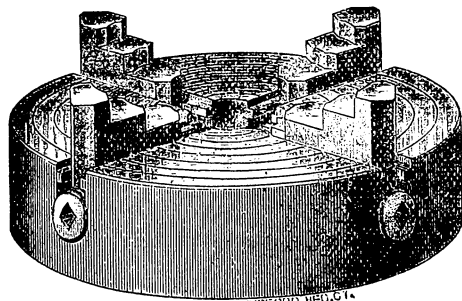
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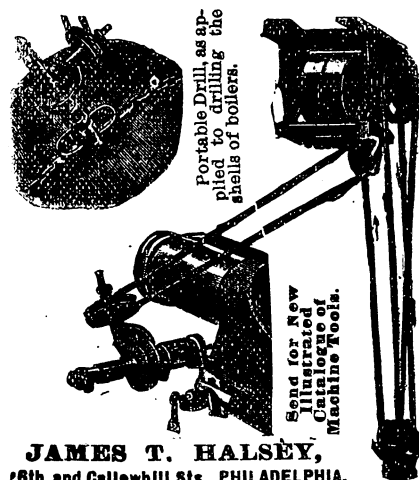
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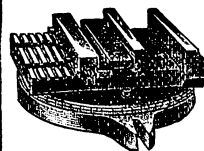
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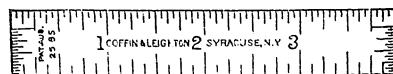


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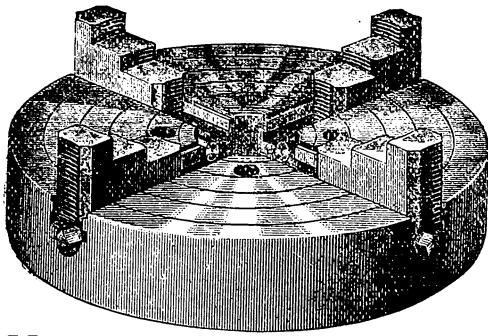
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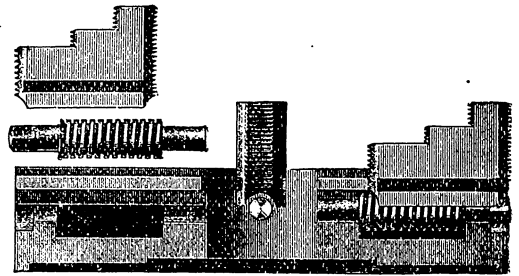
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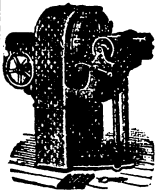


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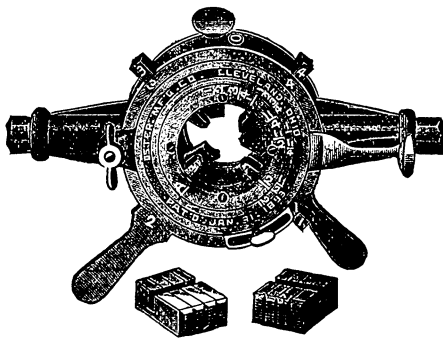
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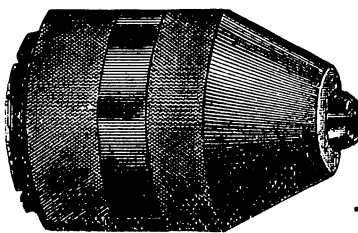
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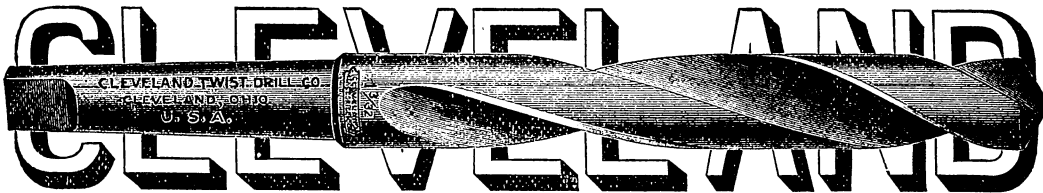
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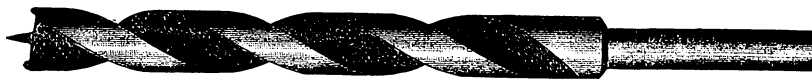
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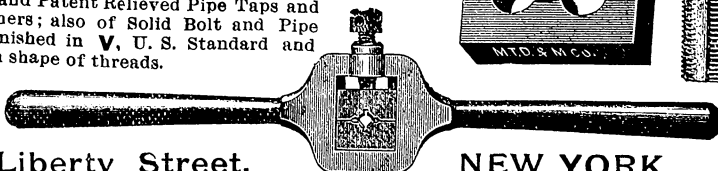
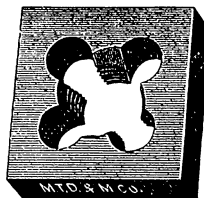
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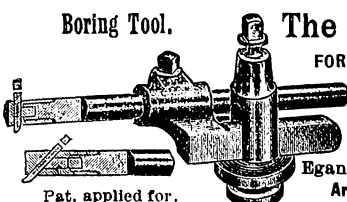


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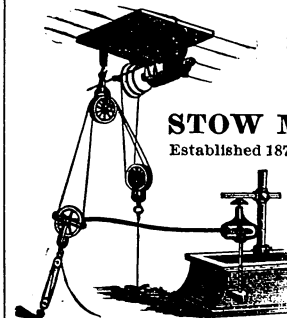
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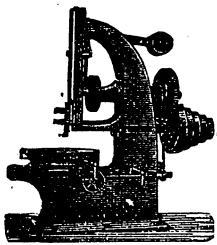
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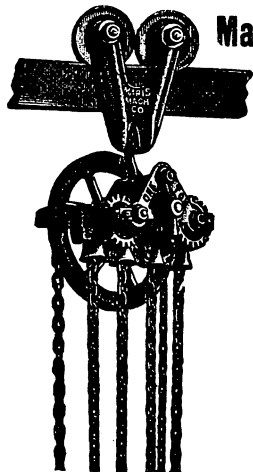
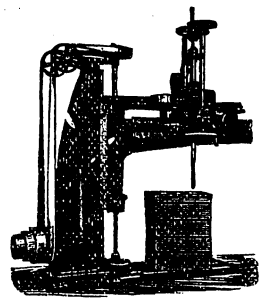


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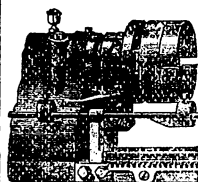
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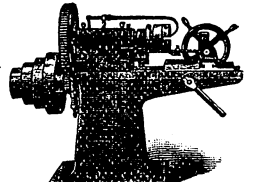
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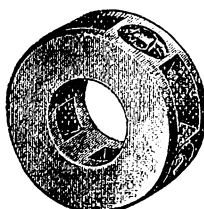
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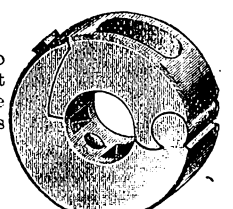
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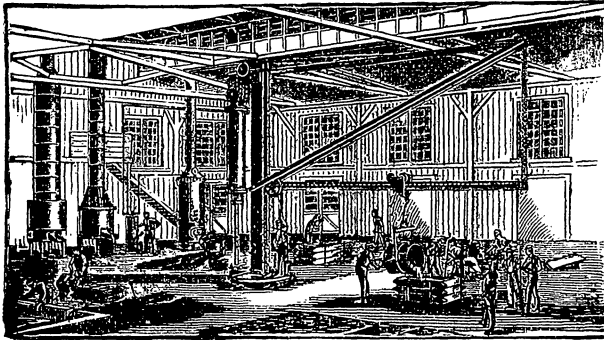
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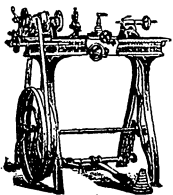
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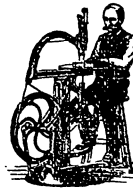
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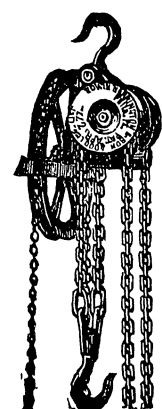
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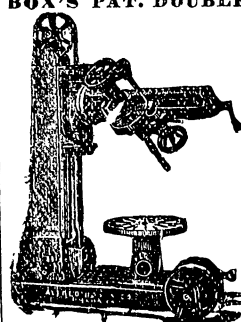
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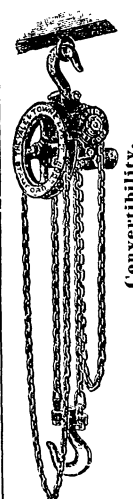
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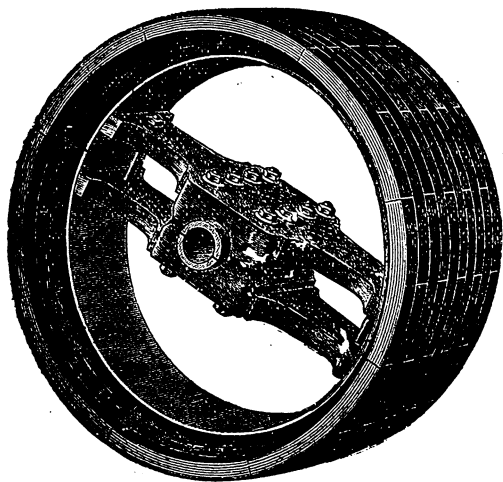
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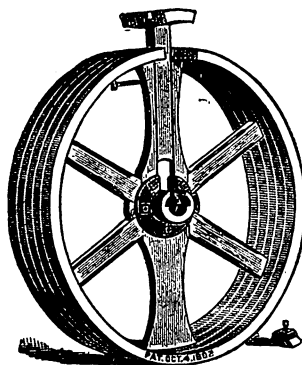
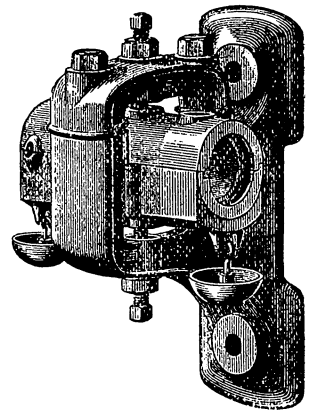
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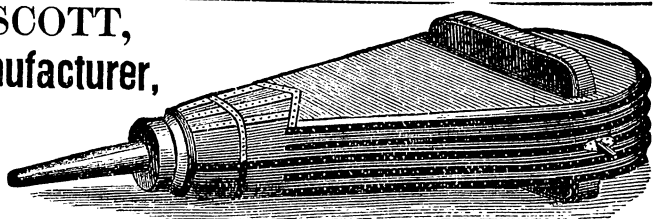
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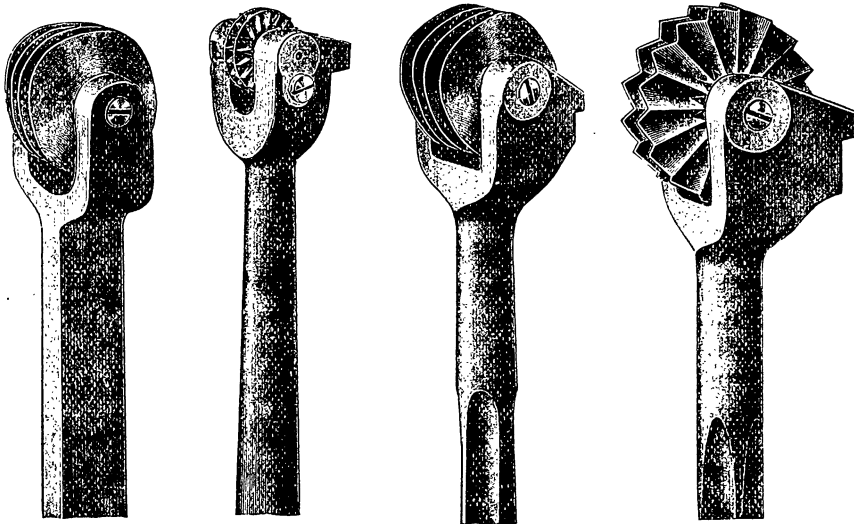
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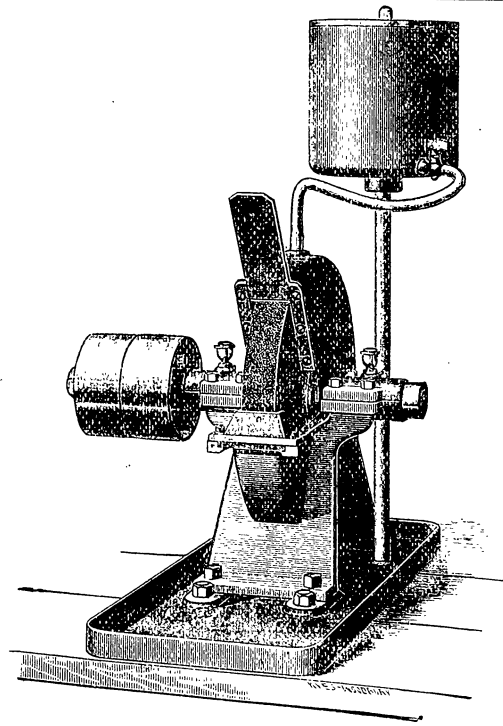
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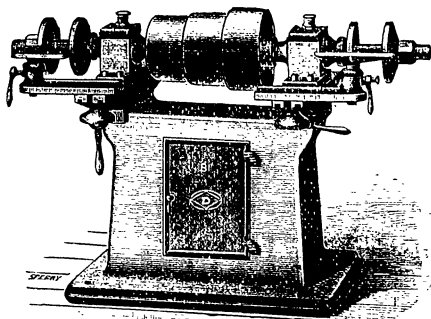
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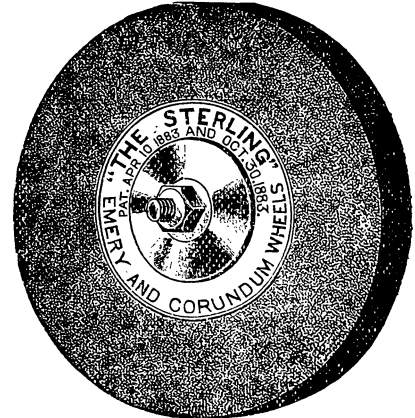
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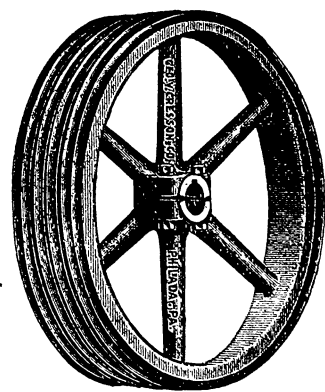
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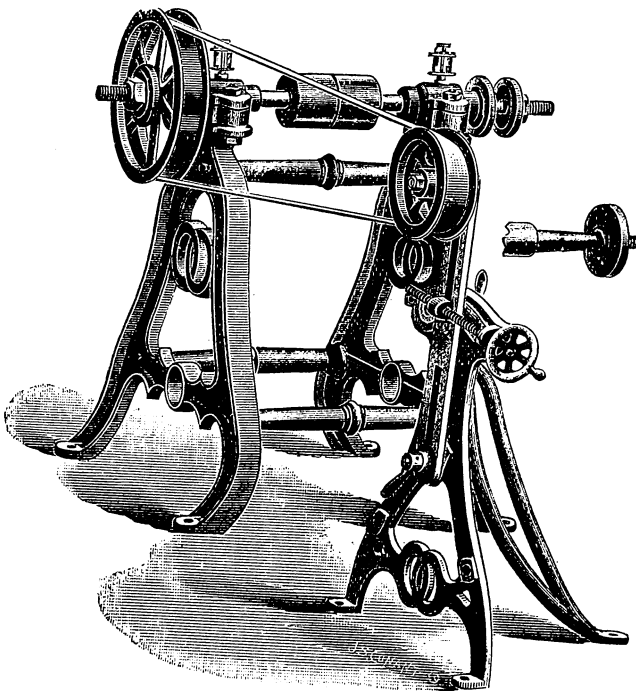
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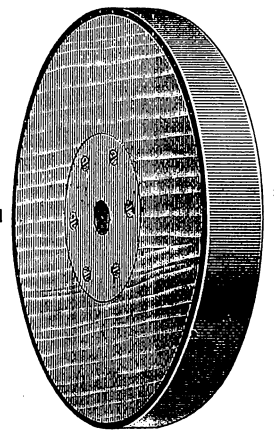
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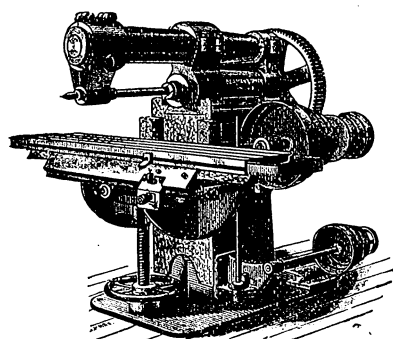
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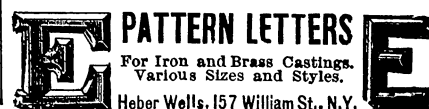
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Eng. Lathe.
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57 in. Double Head
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DEPOSIT CO., Executors, Philadelphia.

BARNES & LOFLAND, Auctioneers,
No. 147 So. Fourth St., Philadelphia.

PITTSBURGH SALES AGENCY,

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Dealers in Coal and Iron Lands.

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ADJOURNED RECEIVER'S SALE**Very Valuable Steel Ore Property (LARGELY DEVELOPED).**

The subscriber, receiver of the

Champion Steel Ore Comp'y

Will sell at public vendue on

Tuesday, October 2nd, 1894

At One o'clock in the Afternoon,

on the premises of said Company, situated in Oxford Township, Warren County, New Jersey, a little east of the public road leading from Oxford Furnace to Belvidere (about one mile from Oxford, two miles from Belvidere and two miles from Buttsville), all that exceedingly valuable Mineral Lease, comprising 122 acres, having 23 years yet to run and including purchase privilege at any time during said term, thus canceling the royalty of 36 cts per ton, together with the complete mining outfit. Machinery, Buildings, &c. The broad-gauge Mineral Railroad extends directly into the property and connects at Buttsville with the Lehigh & Hudson River R. R., which connects with the Del., Lack. & Western and the Pennsylvania R. R. within short distances—1½ and 3 miles.

The machinery includes one 83-horse-power boiler, one 37-horse-power boiler, one 20-horse-power boiler, two Munday hoisting engines, one with double drum, two ore washers, 6-horse-power vertical engine, 12-horse-power horizontal engine, four steam pumps, railroad siding, lot of piping, valves, fittings, and all the usual appurtenances of a well equipped mining property.

The Champion mines produce a superior grade of Bessemer steel ore averaging 65% metal, and may be worked very profitably. The 1-foot solid ore vein alone, when reached and fully opened, should yield not less than 200 tons daily. There will also be sold about 200 tons of Bessemer ore, about 65% metallic iron. Also about 500 tons of tailings, running about 47% metal. Remember the lease is an exceptionally valuable one covering and controlling as it does all the rich deposits and veins of ore underlying to great depth perhaps the 122 acres of mineral land. The Bethlehem Iron Co. have tested and used nearly 7000 tons of the Champion steel ore while the development work was being prosecuted.

Any one wishing to examine the property before or on the day of sale will find J. R. Eckmeyer, Superintendent, a responsible man, in charge, who will give all information needed.

JOSEPH R. ENCKE, Receiver,
P. O. Address, Trenton, N. J.

For Sale.**ALMOST NEW.**

6 ft. Pond Boring Machine.

No. 1 Betts Horizontal Boring Machine.

48 in. x 48 in. x 12 ft. Sellers Planer.

88 in. x 9 ft. Harrington Engine Lathe.

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FOR SALE. Topton Furnace.

The undersigned Executor offers at private sale the valuable blast furnace property known as the "Topton Furnace," situated half way between Reading, Pa., and Allentown, Pa., on the line of the Philadelphia & Reading R.R. Co's East Penn branch. A modern furnace in every particular, seventy feet high, three "Gordon" brick hot blast stoves.

Large 7 ft. x 7 ft. 6 in. "Weimer" Engine of latest design. Largest size "Crane" Elevator and complete equipment in general. Was in active operation until May 1st last, and controlling one of the best foundry and mill trades in the country. Sold to close the estate of the late Henry S. Eckert of Reading, Pa. For particulars address

ISAAC ECKERT,
Executor,
Reading, Pa.

TO THE TRADE.

On Sept. 17th I withdrew from the firm of E. H. Wilson & Co. and will continue in the iron and steel commission business as heretofore on my own account under the firm name of A. V. Kaiser & Co., at 222 and 224 South 3d St., Philadelphia, Pa. The business of the old firm will be settled by the old members at the same place. A. V. KAISER.

NOTICE.

Mr. A. V. Kaiser having withdrawn from the firm of E. H. Wilson & Co. the business will be continued at 222 and 224 South 3d St., under the firm name of E. H. Wilson & Co. by the undersigned.
E. H. WILSON,
J. B. M. HIRONS.

FOR SALE. RIDGWAY BALANCED STEAM HYDRAULIC CRANE.

Length of arm 14 ft. 11 in.; height in the clear, 14 ft. 4 in.; cylinder 12 in. diameter, capacity 1 ton and less. Cost \$400. Never been used, as it was too light for our requirements. Will sell at very low figure. Address

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MANUFACTURED BY
THE JOHN F. BYERS MACHINE CO.
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FOR SALE,

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COUNTY or STATE RIGHTS for a very superior cheap portable steel or iron CULVERT BRIDGE. It is adapted to all small streams, runs, etc. It is just the thing to improve ROADS AND HIGHWAYS. It can be placed below or on the level with the road. It also makes a most excellent RAILROAD CULVERT, GUTTER CROSSING and CITY or TOWN CULVERT. Apply to

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WANTED.

By a large manufacturing establishment some new specialty to make and sell to the Jobbing Hardware, Crockery or Grocery trade. Address

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A well established retail Hardware business. Located in a city, 150,000 inhabitants, Central New York. Stock consists of a general line Builders' Hardware, House Furnishing and Shelf Goods. Will inventory about \$6500. Good location and cheap rent. Investigation solicited. Address

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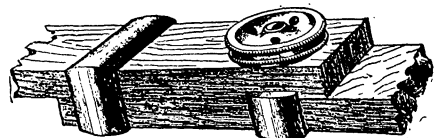
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A N EXPERIENCED STEEL SALESMAN with thorough knowledge of crucible and open hearth product and its users; a responsible position is assured to the right party. Address "CONFIDENTIAL," P. O. Box 5821, Pittsburgh, Pa.

A MAN AS FOREMAN or assistant superintendent in a bolt works; must be able to handle men well, look after every detail and push all the time and at everything; none but a competent and experienced man need apply; to the right man a steady place is assured with chance for advancement; please state age, habits, references and compensation desired. Address "PUSH," No. 816, office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.—Agents in New York, Pennsylvania, Ohio, Indiana and Michigan to carry a staple line of hardware on commission. Address "EDWARDS," 312 Cuyahoga Building, Cleveland, O.

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A N EXPERIENCED, PRACTICAL rolling mill manager and first-class business man wants a position; thoroughly understands how to make merchant iron and steel at lowest figures and is well posted in buying and manipulating scrap. Address "A. W. B.," office of *The Iron Age*, 96-102 Reade St., N. Y.

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A S SUPERINTENDENT, I have successfully handled a large number of men in manufacturing high grade, light interchangeable machine work; have also had many years' experience as a buyer. Best reference, "ENERGETIC," Box 927, office of *The Iron Age*, 96-102 Reade St., N. Y.

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A MAN having had nine years' experience in iron and steel business as salesman, wants position as salesman, either traveling or otherwise. "SHAPES," office of *The Iron Age*, 220 S. Fourth St., Philadelphia.

TWO GENTLEMEN of ability, responsibility and long experience in hardware and allied lines will associate to represent a limited number of manufacturers of staple products in large consumption, worthy of the attention of ability and wide acquaintance and influence with the jobbing trade of the North-west. The interests of principals will be carefully conserved. Unquestionable reference. Address "RESOR," care Orr & Lockett Hardware Co., Chicago.

ROLLING MILL.—Position wanted by superintendent; twenty years' experience in Northern mills. Address "NORTHERN MILLS," office of *The Iron Age*, 96-102 Reade St., N. Y.

A YOUNG MAN (age 19) desires a position under a competent engineer in New York City or in New Jersey, to learn mechanical drawing; has had some school training in that branch; salary not an object. Address "DRAWING," No. 814, office of *The Iron Age*, 96-102 Reade Street, New York.

A GENTLEMAN of experience and ability wants a position as superintendent of an iron or steel rolling mill; best references and testimonials as to character and capabilities. Address "ROLLING MILL," office of *The Iron Age*, 59 Dearborn St., Chicago.

MANUFACTURERS.—Two men experienced in factory, steamship, railway and machinery supplies, will represent in New York manufacturer whose product is used in large quantities in above line of trade and in which competitive prices can be successfully met. Address "G. & S.," office of *The Iron Age*, 96-102 Reade St., N. Y.

A S SUPERINTENDENT or ASSISTANT in a nut and bolt works, by a thorough practical mechanic; has held positions of responsibility; competent to design and construct thread rollers and other improved machinery. Address "B. & N.," No. 927, office of *The Iron Age*, 96-102 Reade St., New York.

A S GAS PRODUCER MAN; 20 years' experience at open hearth and heating furnaces, in rolling mills. Address "GAS PRODUCER," office of *The Iron Age*, 96-102 Reade St., N. Y.

A N ACTIVE and ENERGETIC YOUNG MAN, with wide experience as secretary and correspondent of corporations operating blast furnaces, Bessemer steel works, rolling and nail mills, desires a position with a manufacturing company where integrity, capacity and energy are required; best of references. Address "BESSEMER," office of *The Iron Age*, 96-102 Reade St., New York.

A YOUNG MAN having an extensive acquaintance among the foundries and machine shops of New England in selling pig iron, bar iron and steel, anticipates changing his position and is open for a new engagement where such experience will prove of the most avail; party desiring to communicate address "C. F. W.," office of *The Iron Age*, 96-102 Reade St., N. Y.

FOUNDRY FOREMAN wants situation; American, age 40, well up in the business and up to date in the production of perfect castings at lowest cost; best of references. Address "PERFECT CASTINGS," office of *The Iron Age*, 96-102 Reade St., New York.

A S BOOKKEEPER and CORRESPONDENT, CASHIER or TRAVELING SALESMAN.—Married man, age 37, wants responsible position; ten years' experience in office, six years traveling through the United States, Canada and Great Britain; acquainted with stove and hardware trades, also tin, brass and copper sheet metal manufacturing; fully competent to take entire charge of a manufacturer's office, or that of large wholesale or retail dealer; locality no object, will settle anywhere; seven years' present position; A1 references; moderate salary. Wm. A. LANGFORD, Lawrence, Mass.

A GENTLEMAN with a wide experience of the hardware business, close buyer and an active and successful salesman and hard worker, wants a position either as buyer, manager or salesman; could make himself very valuable to some good house; has a little money and would buy a small interest. Address "M.," No. 920, office of *The Iron Age*, 96-102 Reade St., New York.

GRADUATE MECHANICAL ENGINEER and draftsman, junior member American Society Mechanical Engineers, is open to engagement; experience in rolling mill, mining and general machinery; references. Address "W. T. L.," No. 920, office of *The Iron Age*, 96-102 Reade St., New York.

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ROLLING MILL SUPERINTENDENT desires position; thoroughly practical; will invest a small amount of money as a guarantee if desired; best of references. Address "R. M. S.," office of *The Iron Age*, 96-102 Reade St., N. Y.

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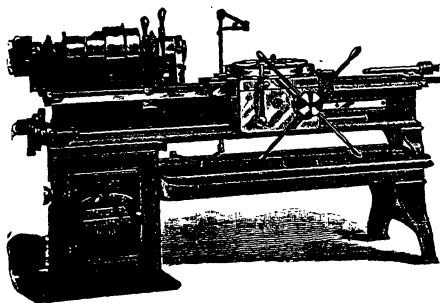
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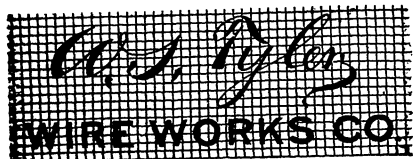
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FLAT TURRET LATHE ?

If not send for

RAPID LATHE WORK.

JONES & LAMSON MACHINE CO.,

SPRINGFIELD, VT., U. S. A.



MANUFACTURERS OF

"The Tyler"
Galvanized Poultry Netting.

All Widths and Meshes Carried in Stock,

W. S. TYLER, Pres. PROCTOR PATTERSON, Sec. and
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DR. GIDEON E. MOORE,

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DEPARTMENT OF CHEMISTRY. Analyses and Assays of Ores, Metals, Waters, Fuel, Oils and Natural and Industrial Products of every description.

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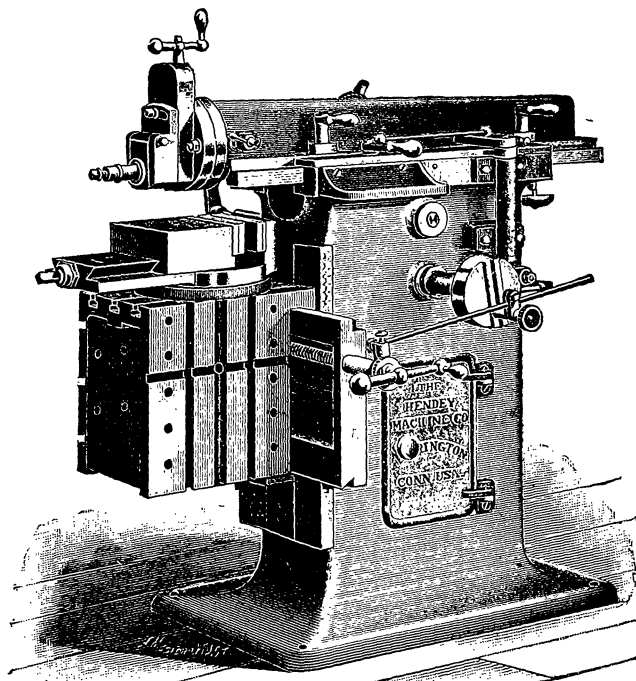
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Ingots, Plates, Bars, Sheets,

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24-inch Improved Hendey Shaper.

COMBINES the LATEST and BEST Improvements.

Useful Attachments, Strong and Powerful. Changes

Made Rapidly. Uniform Cutting Speed. For Tool

Room use or all around Machine Shop Work.

THE HENDEY-NORTON LATHE.

It stands at the head. It has no rival.

It represents modern ideas and modern practice in

Screw Cutting Engine Lathes.

We challenge a comparison of its conveniences,

Useful attachments and every day merits with ANY lathe made.

Buy the best. Keep up with the times.

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SEVENTY-TWO-INCH

PULLEY TURNING MACHINE.

NEW, SPLENDID TOOL.

NEWARK MACHINE TOOL WORKS,

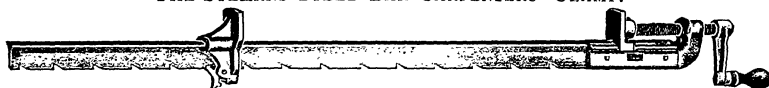
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CLAMP.

THE STEARNS STEEL BAR CARPENTERS' CLAMP.



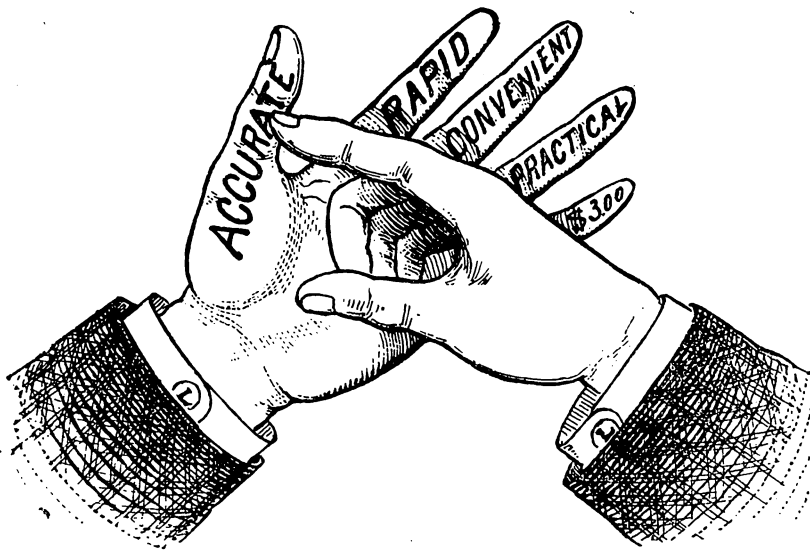
IT HOLDS.

The strongest, most powerful, most convenient and best finished.

Lengths, 3, 4, 5, 6, 7, 8, 9, 10 foot.

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For Example, we desire to find the net of \$73.00 at discount 65, 20, 7½, 5 and 2½ percent. By the old way we take our pencil, and, after a deal of figuring, conclude (if we haven't made an error that the result should be \$17.51, but we are not sure of it till we prove it. By the new way (the use of Ladd's Discount Book), we put our finger right on it in a moment, and know that the result is correct.

The book contains over 100,000 computations, and is indispensable where percentages are employed. Price, per mail, \$3.00. Double Indexed Edition, \$4.00.

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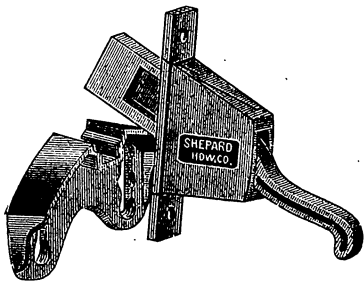
THE
BEST
FREEZER.

Heavy Waterproof Tubs. Cans of Charcoal Tin-plate. Malleable Iron Dashers. All inside parts tin-plated. Gearing completely covered.

THE
BEST
SELLER.

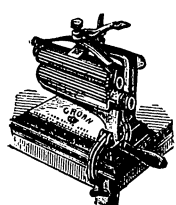
The White Mountain Freezer Co., Nashua, N. H.

A REPUTATION ONCE GAINED MAY BE MAINTAINED.

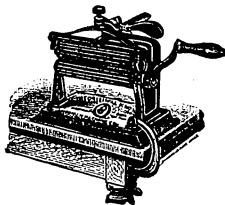


That is why we took advantage of the opportunity to purchase the business of the Shepard Hdw. Co., of Buffalo, N. Y., in Gate Hinges and Latches, Blind and Shutter Hinges and Frame Pulleys, of the original "Clark" and other patterns made by them, which goods are recognized to be the best on the market, Send for our prices. Wrightsville Hardware Co., Wrightsville, Pa.

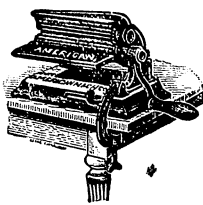
SURPLESS, DUNN & ALDER., 15 Murray Street, New York, Agents.
Henry Keidel & Co., Southern Agents, 25 Hanover St., Baltimore, Md.



Crown.



Original Knox.



American.

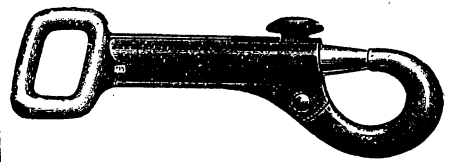
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FOR CATALOGUE, PRICE AND DISCOUNTS WRITE TO

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or JOHN H. GRAHAM & CO., Manufacturers' Agents, 113 Chambers St., New York.

COVERT'S BANNER BOLT SNAP.



This snap has many important advantages over other makes of Bolt Snaps, viz.: It is lighter, the spring is entirely covered and protected from foreign substances and freezing, and is lower in price.

Made in all sizes: Round, Loop and Open Eye. We are headquarters and the most extensive manufacturers in Saddlery, Coach and General Hardware Specialties.

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FARMER, N. Y., U. S. A.

Hardware Dealers
Can Profitably
SELL BICYCLES.

There is a large trade in Bicycles in all parts of the country and much of that trade naturally belongs to dealers in hardware. Good bicycles meet with a ready sale and pay a fair percentage of profit.

COLUMBIAS

Are the representative high grade machines in America. A Columbia is the easiest machine to sell to the best trade because it is unquestionably the standard wheel of the world.

We want enterprising agents of good standing and solicit correspondence.

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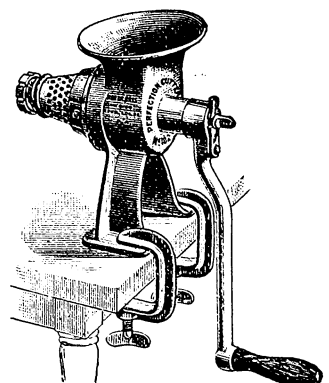


DIPLOMAS AWARDED. Courses in other trades, all including thorough instruction in Mathematics and Physics. Send for FREE Circular, stating subject you wish to study, to The Correspondence School of Mechanics, Scranton, Pa.

The NEW 1894
PATTERN
PERFECTION
CUTTER.

Improved and Enlarged.

Simple to use.
Easily cleaned.
Of few pieces.
No parts to wear out.



CLARK'S BEST QUALITY SCREW DRIVERS.



Four Drivers and one Handle; all interchangeable; are hardened and tempered all over; made of best stock, and finished first-class.

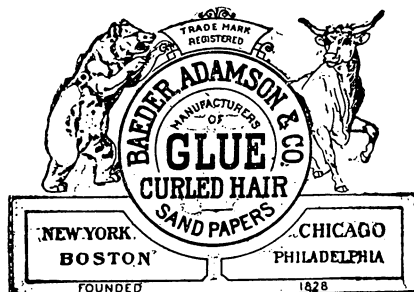
FOR SALE BY ALL HARDWARE DEALERS.

MANUFACTURED BY

R. H. BROWN & CO.

NEW HAVEN, CONN.

*You take no risk on the quality...
We make only the best!*



**Sand
Papers**

IN
Reams and Rolls

(Flint Paper
Garnet Paper
Emery Paper
Emery Cloth)

HAIR FELTING for covering Boilers, Steam and Water Pipe, and lining Refrigerators.

BAEDER, ADAMSON & Co.

730 MARKET STREET, PHILADELPHIA.
67 BECKMAN STREET, NEW YORK.
143 MILK STREET, BOSTON.
182 LAKE STREET, CHICAGO.

THE GEM SOLID STEEL MINCER



Single
and
Double Blades.

Handle and Blade Formed in one piece.
Always Clean. Indestructible.

No Rivets to Wear Loose.

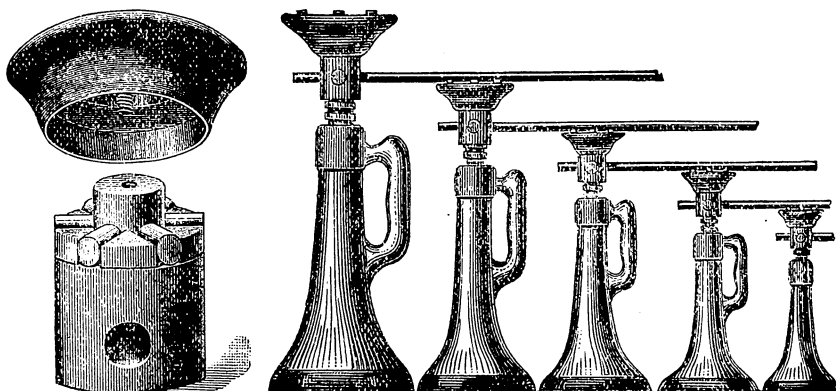
No Wooden Handle to Shrink, Swell, loosen,
Split, or Fill with Rancid Grease.

MANUFACTURED BY

PALMER HARDWARE MFG. CO.

TROY, N. Y.

ROLLER JACK SCREW.



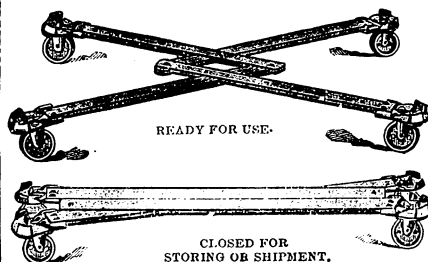
We have experimented much with ball bearing Jacks, and found them very satisfactory when not heavily loaded. Now, instead of balls we put in rollers, as seen in cut. These rollers will stand any load that the Jack will carry, and are not liable to get out of order. We have thoroughly tested these Roller Jacks with a spring balance and find a saving of seventy-five per cent. of power needed to lift a given weight.

The price is about ten per cent. more for Roller Jacks, and the gain is 75 per cent. This ought to insure their sale as fast as the facts become known.

MILLERS FALLS CO.,

93 READE STREET, - - - NEW YORK.

Lock Frame Stove Trucks.



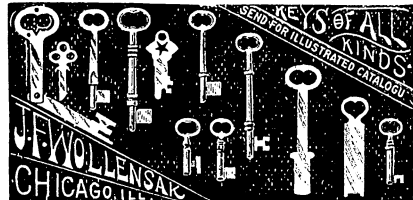
Fit any stove, large or small, without nuts, bolts, screws or yokes. Have the best ball bearing casters.

Fully warranted. Price, \$15.00 and \$18.00 per dozen.

FOR SALE BY MANUFACTURERS

RANDALL & WARD,

Le Roy, N. Y.



CABINET LOCKS

OF EVERY KIND.

DRAWER LOCKS,
CUPBOARD LOCKS,
WARDROBE LOCKS,
CHEST LOCKS,
DESK LOCKS.

A complete line of more than 1000 list numbers exclusive of our old
and complete line of

YALE CABINET LOCKS.

THE YALE & TOWNE M'F'G CO.,

STAMFORD, CONNECTICUT.

New York. Chicago. Philadelphia. Boston. Pittsburg. San Francisco.

The only question is

Is it Le Page's?

If it is you have made a sale. **HUNDREDS** of **THOUSANDS** of **PLEASED** and **SATISFIED** **CUSTOMERS** testify to the merits of

~LE PAGE'S LIQUID GLUE.~

If you sell it you do not have to **WASTE ANY TIME** in answering questions as to its quality.

The people **KNOW** that **LE PAGE'S GLUE** is the **BEST**. They have used it for years and have proved our claims to be true.

It is the only Glue made **WITHOUT ACIDS**.

A dealer who regards his time as worth anything will not risk losing his **CUSTOMERS' CONFIDENCE** by trying to sell something which is **CLAIMED** to be "just as strong" and "just as good as LePage's."

Don't let your customers go to another store for what they want, but **SELL THEM WHAT THEY ASK FOR**.

We can furnish original and attractive advertising matter for "**LE PAGE'S GLUE**" upon request.

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PACIFIC COAST OFFICE, 23 Davis St., San Francisco, Cal.

CARPENTERS' & MACHINISTS'

IRON BENCH LEVEL

WITH DOUBLE PLUMB.

No. 5. 6 in.



MANUFACTURED BY

C. F. RICHARDSON & SON,

ATHOL, MASS.

The Marty French Traps for Rats and Mice.

GREAT REDUCTION IN PRICE.

On account of the lower rate of duties under the new tariff we are now prepared to furnish all sizes at greatly reduced prices, which we shall be glad to quote on application.

Remember we are the **sole importers** of the **genuine Trap**. All others are flimsy and worthless imitations.

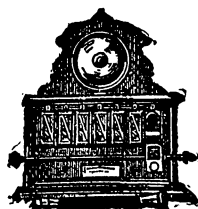
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WM. KROGSrud,
Engraver and Die Sinker,
61 Fulton St., N. Y.
Manufacturer of

STEEL STAMPS
For Every Purpose,
Steel Letters and Figures.
Burning Brands, Stencils,
&c. Send for Illustrated
Catalogue

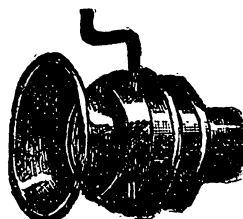


W. R. OSTRANDER & CO.,

204 FULTON STREET, NEW YORK,
Manufacturers of

**SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC
MECHANICAL AND PNEUMATIC ANNUNCIATORS
AND BELLS.**

Complete outfits of Speaking Tubes, Whistles,
Electric, Mechanical and Pneumatic Bells. A full line
always in stock. Send for new catalogue. Factory,
DeKalb ave. near Knickerbocker, Brooklyn, N. Y.



Yacht AND Boat Hardware.

L. W. FERDINAND & CO.,
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Send for 226-Page Catalogue.

W. & B. DOUGLAS, MIDDLETOWN, CONN.

Branch Warehouses: 85 and 87 John St., New York; 197 Lake Street, Chicago, Ill.

THE OLDEST AND MOST EXTENSIVE MANUFACTURERS OF

Pumps, Hydraulic Rams, Garden Engines,

Yard Hydrants, Street Washers, Galvanized Pump Chain, Wind Mill Pumps and other Hydraulic Machines in the World.

DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

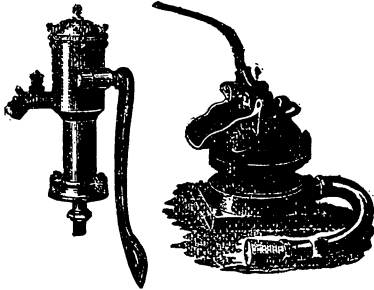
A LARGE CAPACITY AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries;

Fig. 209.

Fig. 881.

Fig. 145.



or wherever it is desired to raise a large quantity of water by
hand power.

The pump has large valves (accessible by hand), and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

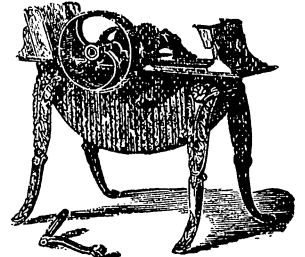
CAPACITY

from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for **IRON** Pipe Suction underneath.

Send for Circular and Price List.



C. I. Grindstone Frame.

THE DEMING
FACTORY
SALEM, O. U.S.A.
MANUFACTURERS OF
HAND & POWER PUMPS, WELL SUPPLIES & C. VERTICAL STEAM PUMPING ENGINES.
N.Y. OFFICE: 72 JOHN ST.
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GEN'L. WESTERN AGTS.
55 & 57 N. CLINTON ST.
CHICAGO, ILL.

ARTESIAN WELL CYLINDERS
HYDRAULIC RAMS

PRENTISS' PAT. VISES.

The Leaders for 20 Years.

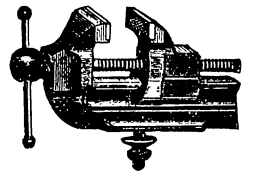
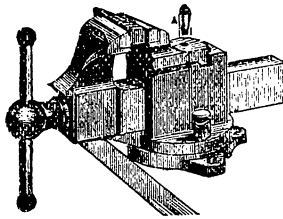
Send for Illustrated Catalogue
of

ALL KINDS OF VISES.

PRENTISS VISE COMPANY,

MANUFACTURERS,

44 Barclay St., New York.



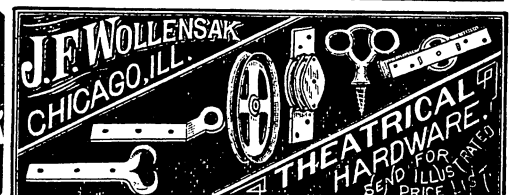
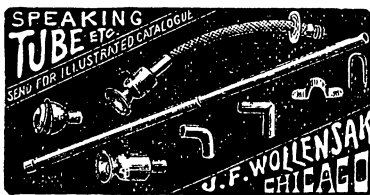
"RIVAL"

Steel Measuring Tapes.

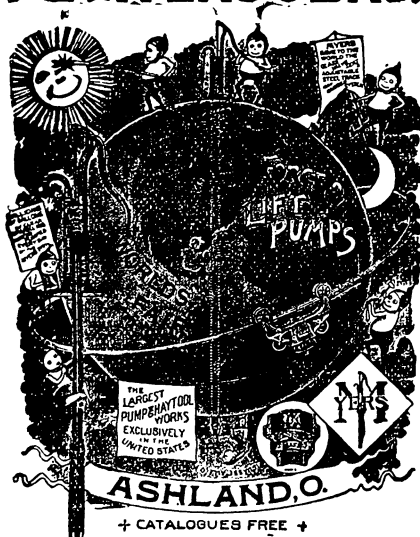
Something New! A low priced Steel Tape. First-class and fully guaranteed. Nickel Plated Case. Flush Handle. $\frac{3}{8}$ in. Tape. Marked one side only. Made 25, 50, 75, 100 feet lengths.

LUFKIN RULE CO., Saginaw, Mich.

NEW YORK OFFICE, 2 $\frac{1}{2}$ MURRAY ST.



F.E. MYERS & BRO.



Ashland Pump and Hay Tool Works.

The New York Safety Dumb Waiter.
The Manhattan Dumb Waiter.
The Improved Humphrey Hand Elevator.
Made specially to be sold by Hardware Stores.
Thousands in use. Catalogues on application.
THE STORM MANUFACTURING CO.
NEWARK, NEW JERSEY.
Formerly of Poughkeepsie, New York.

MERK CHRISTMAS TREE HOLDER!

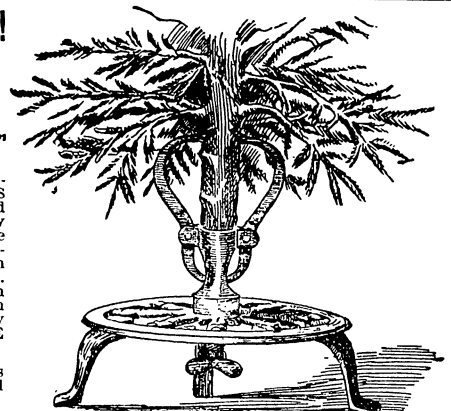
PATENTED SEPT. 1st, 1891.

BUY THE BEST.

Christmas comes but once a year

If you want to make your home pleasant and cheerful during the holidays BUY A MERK CHRISTMAS TREE HOLDER. Made of iron, neatly finished in gold bronze or japanned, a great improvement over any heretofore made. By an ingenious contrivance the tree is held secure by strong arms which extend upward from the main body of the receptacle in which it is placed. If desired the tree can be revolved. Sample tree holders sent by express prepaid upon receipt of \$1. Packed in quarter and half dozen crates for shipment. Manufactured and sold only by the **ALLENTOWN HARDWARE WORKS, ALLENTOWN, PA.**

SOMETHING NEW.—Hardware dealers and others are requested to write for descriptive circulars and wholesale prices.



**STANDARD
Tool Co.**
MANUFACTURERS OF
*Mechanics'
Fine Tools.*
ATHOL, MASS. U.S.A.
EVERY TOOL WARRANTED.
Catalogue Free.

Athol Machine Co.,
Selling Agents.



**HOLLANDS'
OFFSET JAW
VISE.**

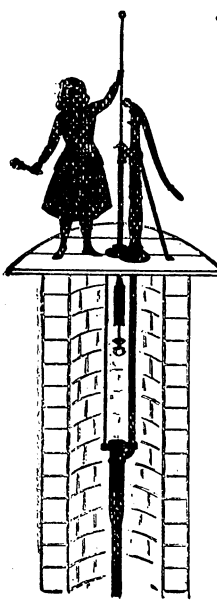

Specially adapted for drill press work where chucks cannot be used and equally good for special or regular bench work.

Hollands Mfg. Co.,
ERIE, PA.,
Manufacturers all
styles VISES.

**Red Jacket
Mfg Co.**
DAVENPORT
IOWA, U.S.A.
Manufacture the
Only Pump
in the U. S.
that works easily in
wells of any depth, and
can easily be fixed by
any one with a monkey
wrench without taking
the pump from
well or tearing up the
platform.

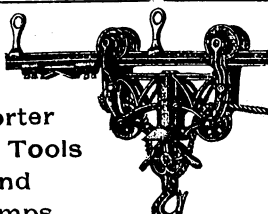
WRITE FOR PRICES.

Chas. Millar & Son,
General Eastern Agts.,
UTICA, N.Y.

**Porter
Hay Tools
and
Pumps.**
Complete Line.
CATALOGUE FREE.

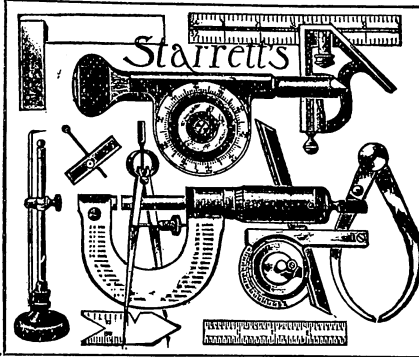
J. E. PORTER CO.,
OTTAWA, ILL.



Skilled mechanics prefer them Live dealers sell them

STARRETT'S

Best in workmanship
Finest in finish
Latest in improvements



For all workers in metal or wood
Every tool warranted satisfactory

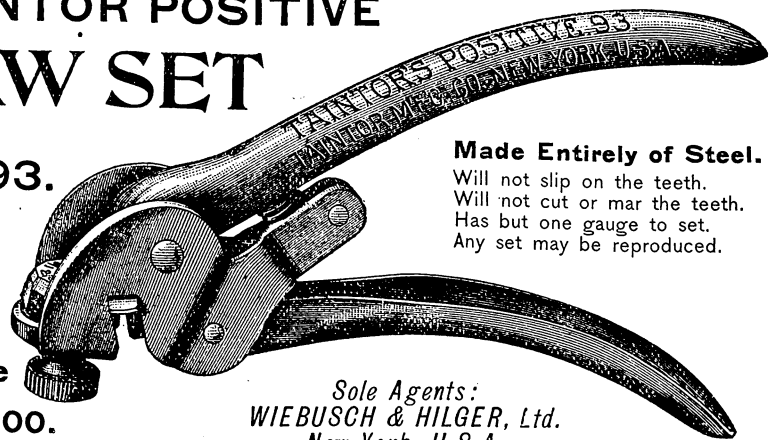
FINE TOOLS

Send for Catalogue L. S. Starrett, Athol, Mass.

TAINTOR POSITIVE SAW SET

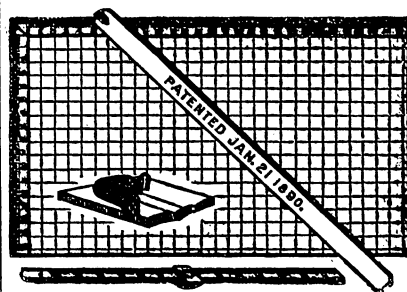
No. 93.

Retail

Price
\$1.00.**Made Entirely of Steel.**

Will not slip on the teeth.
Will not cut or mar the teeth.
Has but one gauge to set.
Any set may be reproduced.

Sole Agents:
WIEBUSCH & HILGER, Ltd.
New York, U.S.A.



The Canton Glass Board.

Cuts any Fraction of an inch by Eighths.

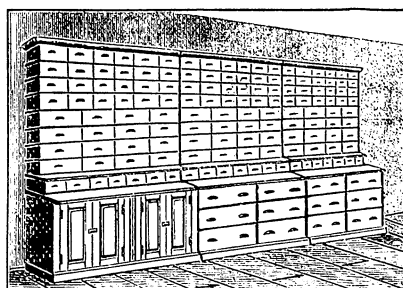
Unequaled for accuracy and quick work in cutting square or at any angle. Saves breakages, &c.

—ALSO—

IMPROVED TRAMMEL RULE for Cutting Circles

From 3 inches up to 48 inches, Segments,
Gothic Shapes, &c.

Send for Circular.

The Canton Saw Co., Canton, Ohio.

HARDWARE DRAWERS.



**THE WERNICKE SYSTEM
OF STORE FIXTURES.**

It is new, novel and unequaled for beauty,
convenience and economy.

Send for Descriptive Circulars.

THE WERNICKE CO.,
Manufacturers of General Store, Bank and Office Furniture,
No. 125 WILDER STREET, MINNEAPOLIS, MINN.

GEO. N. CLEMSON, PRES.

S. S. BATTIN, Vice-Pres.

ROBERT J. JOHNSON, Treas.

F. B. EARLE, Sec.

THE NATIONAL SAW CO.,

OPERATING

Wheeler, Madden & Clemson Mfg Co., Wood-rough & McParlin, Richardson Brothers, Harvey W. Peace Co., Monhagen Steel Works, Wood-rough & Clemson, Pennsylvania Saw Co.

SEND FOR PRICE-LIST.

GENERAL OFFICE :

NEWARK, - - New Jersey.

SAWS

WENTWORTH'S PATENT NOISELESS SAW VISES,

WITH RUBBER CUSHIONED JAWS.

Prevent all vibration and render Saw Filing noiseless.
Will make no more noise than Filing on a Solid Piece of Iron.

Have a Larger Sale than All Other Kinds Combined.

PRICE LIST.

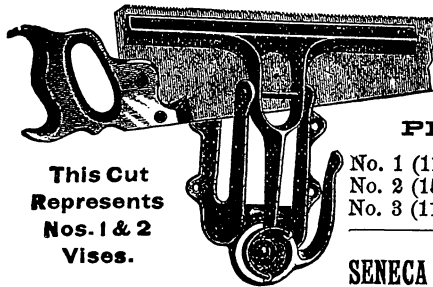
No. 1 (11 inch Jaws),	-	\$15.00
No. 2 (15 inch Jaws),	-	21.00
No. 3 (11 inch Jaws),	-	18.00

LIBERAL DISCOUNT TO THE TRADE.

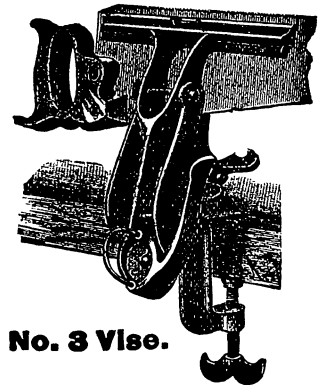
LONGEST JAWS, HEAVIEST AND
BEST FINISHED.
Sold by all leading jobbers of gen-
eral Hardware at Factory Prices.

-MANUFACTURED BY-

SENECA FALLS MFG. CO., 255 Water St., Seneca Falls, N. Y.



This Cut
Represents
Nos. 1 & 2
Vises.



No. 3 Vise.

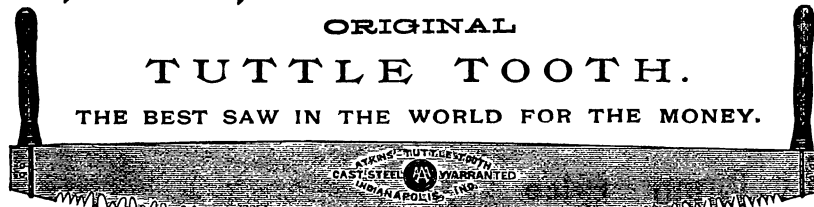
E. C. ATKINS & CO., Indianapolis, Ind.

BRANCH HOUSES:
Memphis, Tenn.
Minneapolis, Minn.
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Circular, Band, Cross-Cut and Hand Saws.

Diamond.
Rex.
American.

Dexter.
Lance.
Columbian.



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TUTTLE TOOTH.

THE BEST SAW IN THE WORLD FOR THE MONEY.

Fine Steel, Patent Temper.

Furnish your Trade with the Best Saws.

The ATKINS Saws Lead them all.

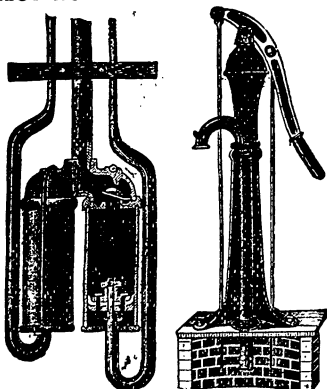


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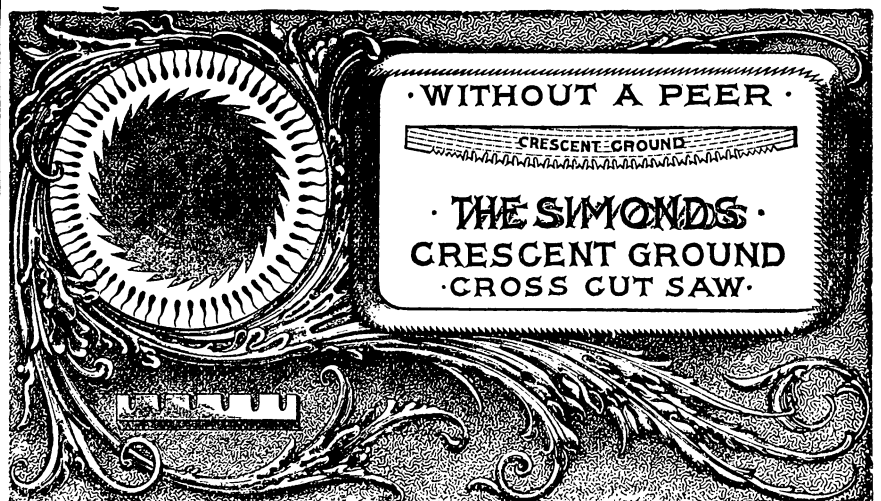
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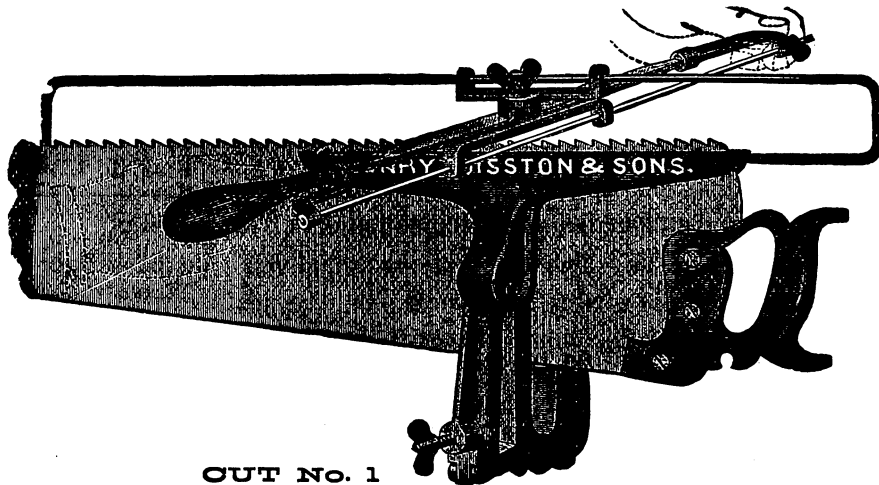
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· THE SIMONDS ·
CRESCENT GROUND
· CROSS CUT SAW ·

Simonds Mfg Co. Simonds Saw Co.,
FITCHBURG, MASS. CHICAGO, ILL. SAN FRANCISCO CAL. PORTLAND, ORE.

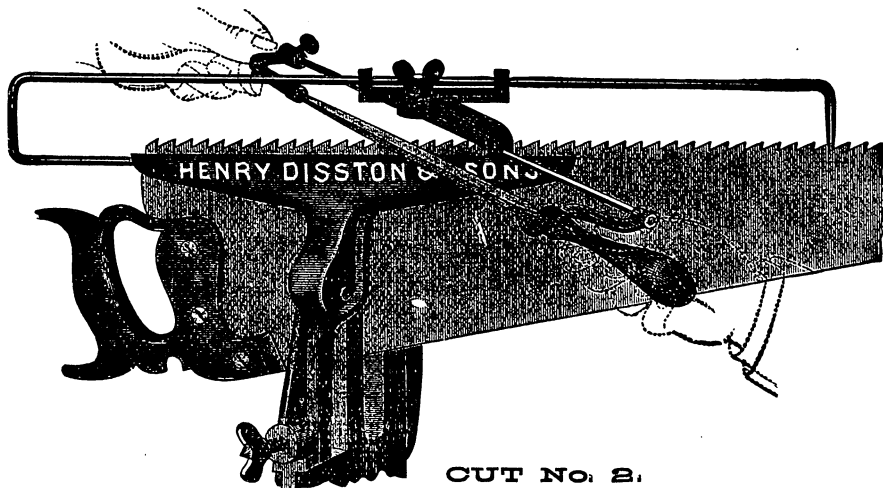
DISSTON'S Improved Saw Clamp AND FILING GUIDE.

ESPECIALLY DESIGNED TO ASSIST THOSE NOT SKILLED IN THE ART
OF SAW FILING TO FILE A SAW CORRECTLY.



CUT NO. 1

Cut No. 1 shows a saw and the attachment in proper position for filing the first side **and** Cut No. 2 shows the saw and attachment reversed and in position to file the second **side**. There are three marks on one of the hubs of the swivel attachment, and one mark on the **other**. One of the three marks shows when it is in position No. 1, and the other designates when it is in position as shown in No. 2. The third, or centre, marks show when it is in position for filing Rip Saws.



CUT NO. 2.

To obtain the correct position, loosen the wing nut and move the guide around to the point desired; after tightening wing nut, loosen screw in file handle, then turn handle until file gives the shape tooth wanted.

A good way is to select a tooth of correct shape and let file down into it, tighten set screw in handle, then file a tooth to see if the shape suits. If not turn the file a little to the right or left and try another tooth until the proper shape is obtained. Then file every other tooth, see cut No. 1; when one side is filed, reverse saw and attachment and adjust as in No. 2, and file the other teeth. For Rip Saws, place the file at right angles with the saw and file every tooth. Always keep the file as nearly horizontal as possible.

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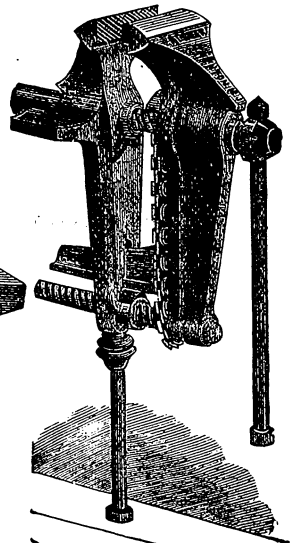
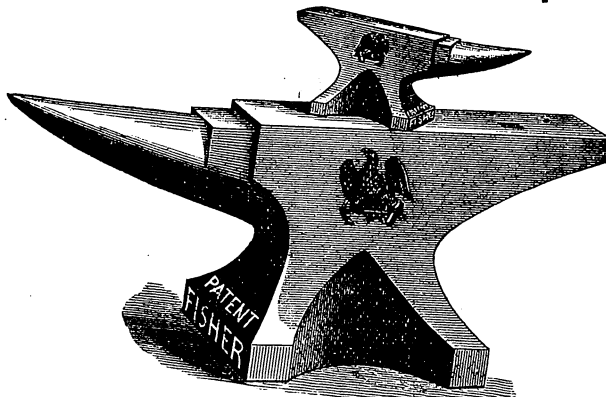
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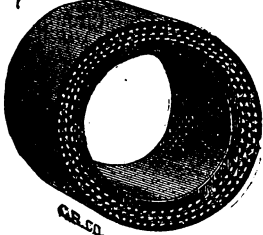


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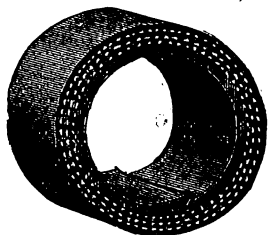
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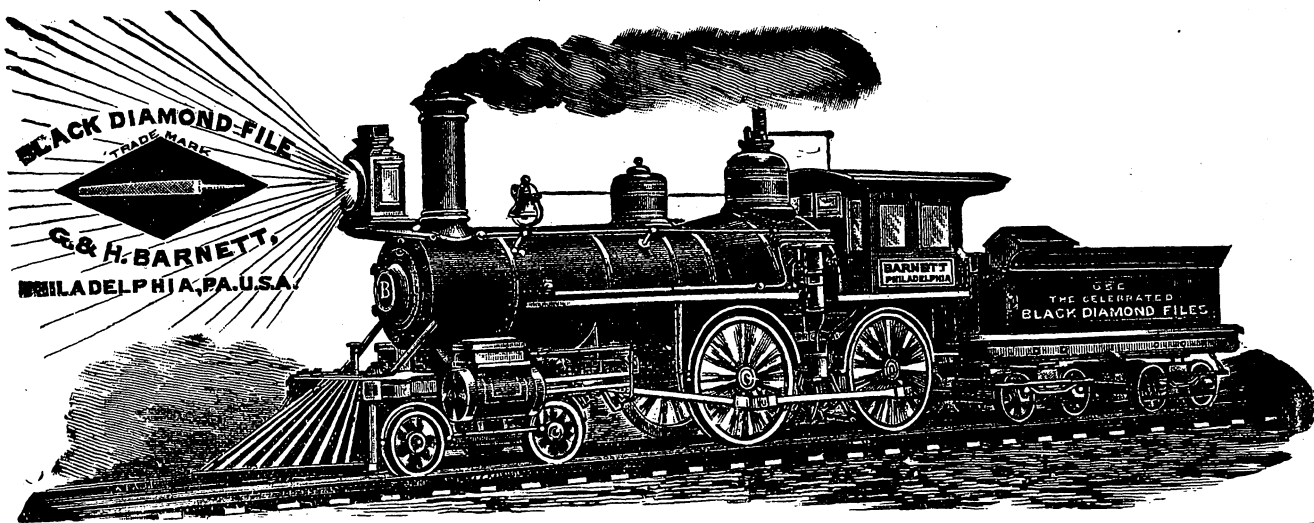
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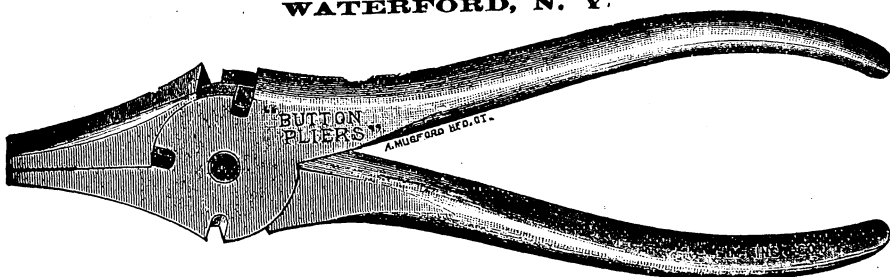
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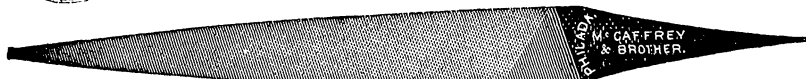
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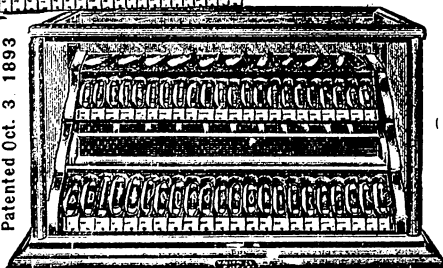
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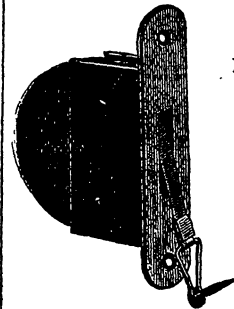
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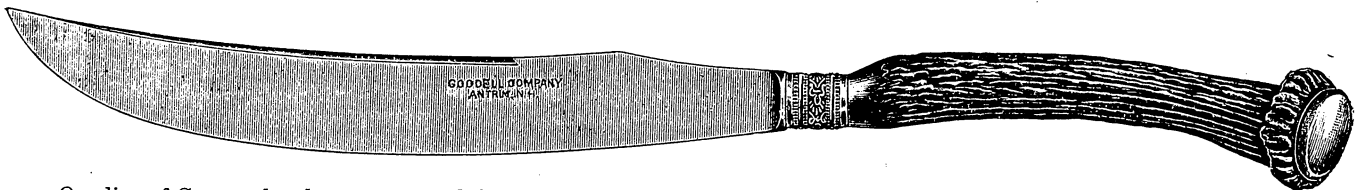


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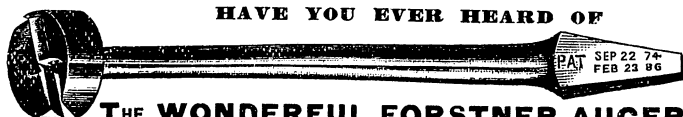
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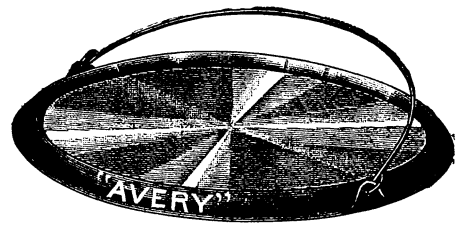
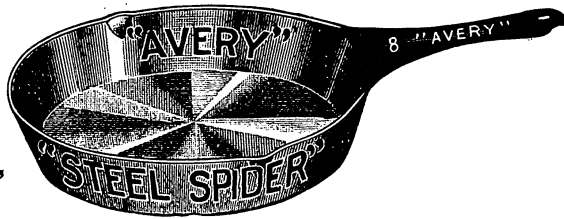
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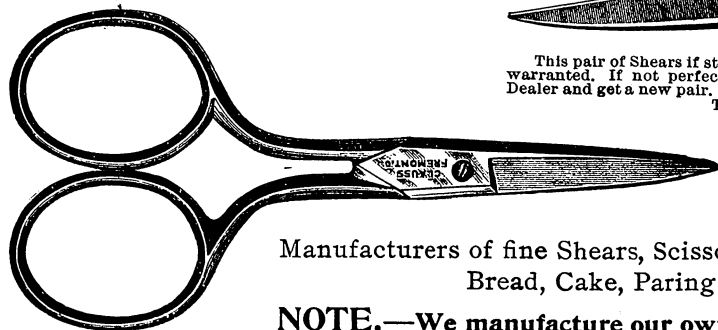


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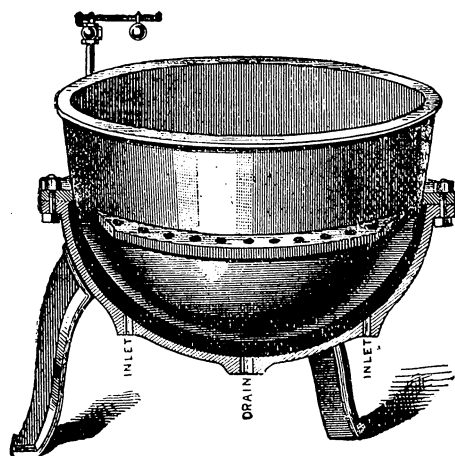
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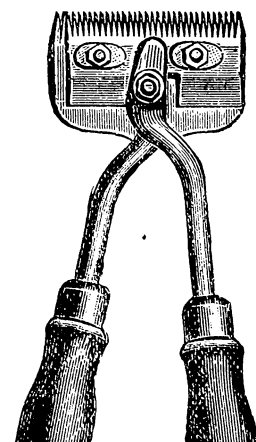
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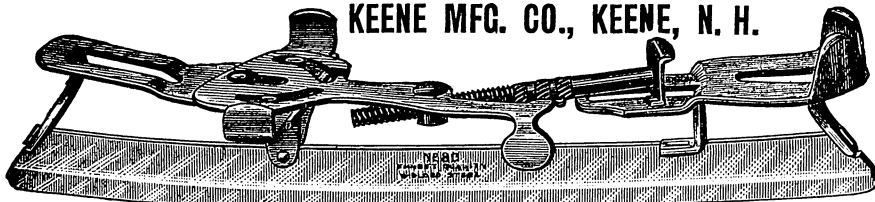


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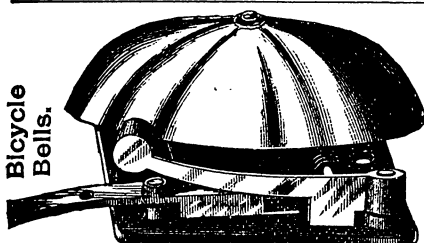


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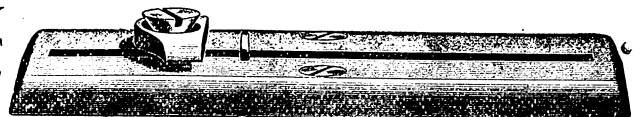
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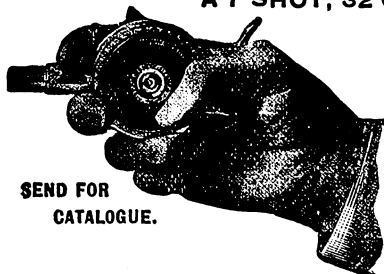
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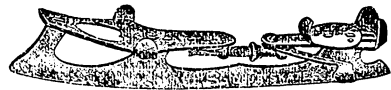
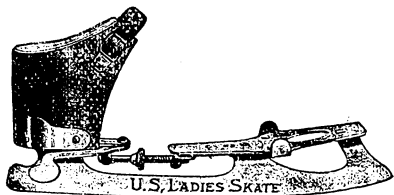
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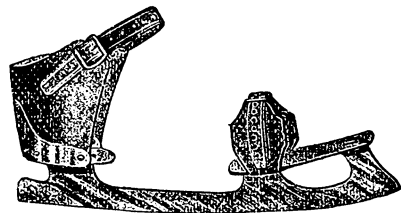
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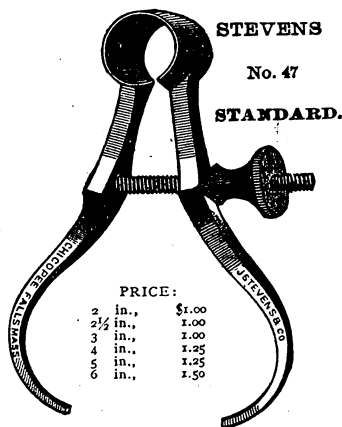
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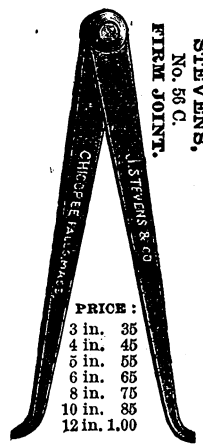
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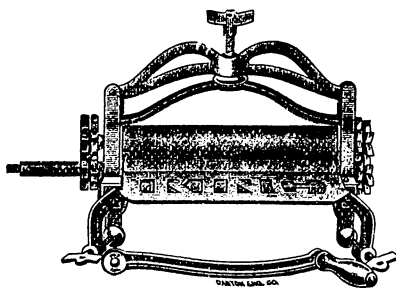
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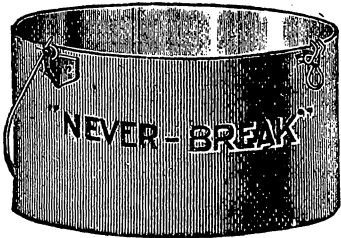
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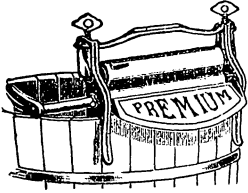
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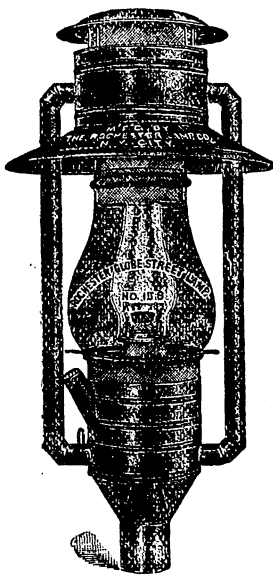
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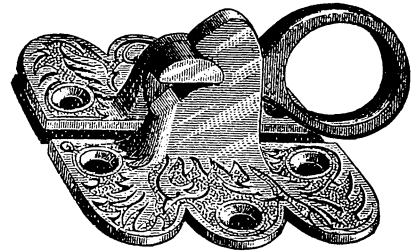
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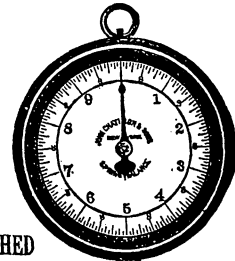
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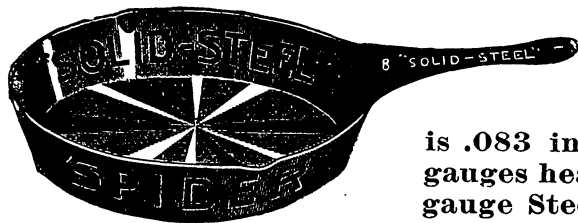
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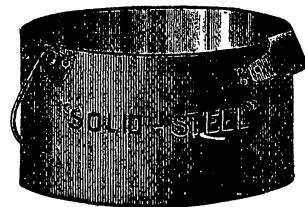
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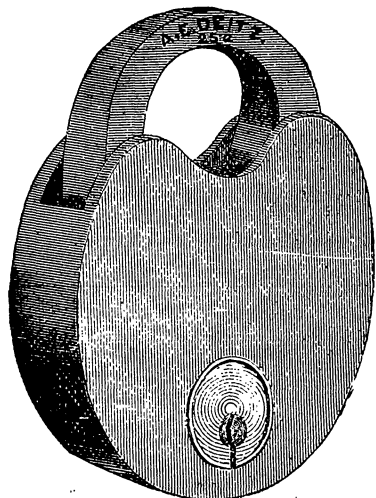


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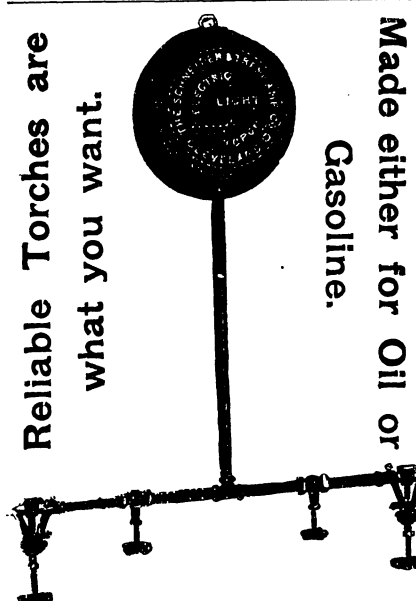
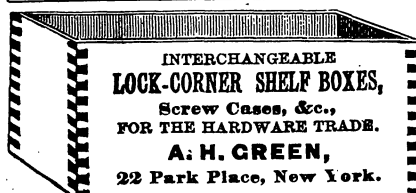
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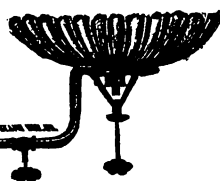


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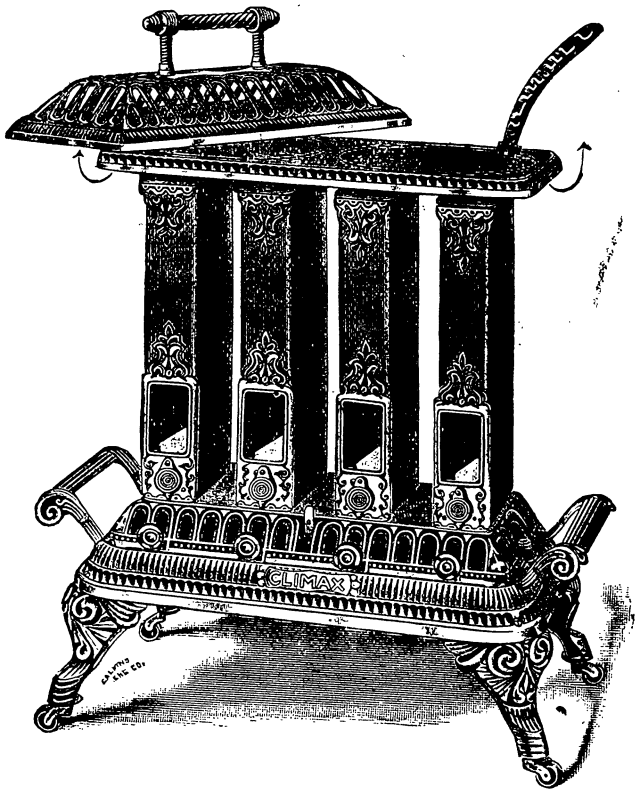
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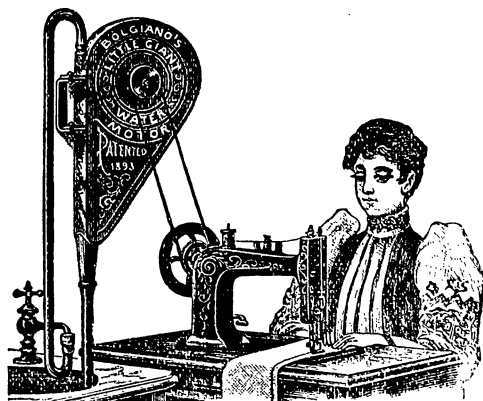
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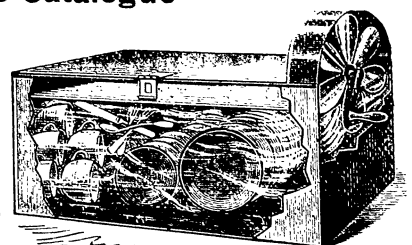
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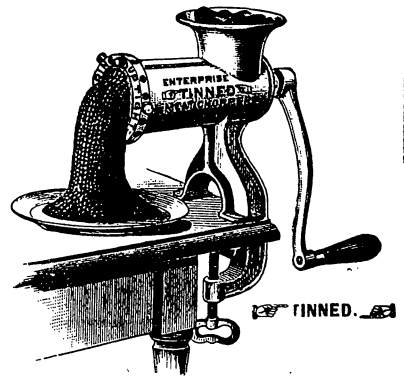
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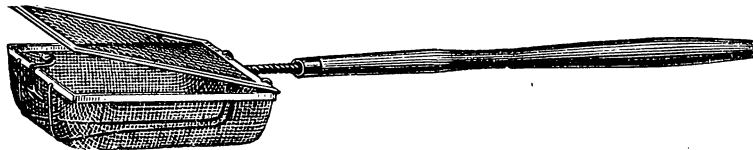
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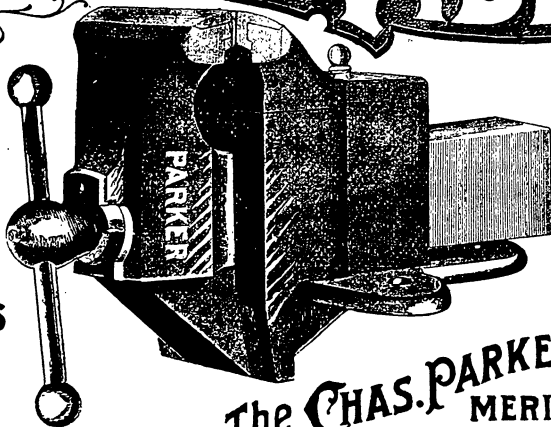
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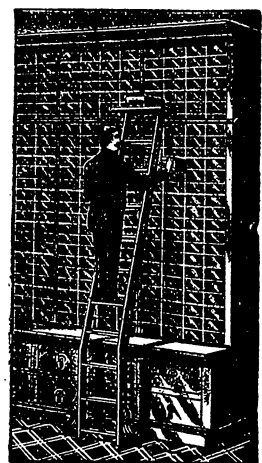


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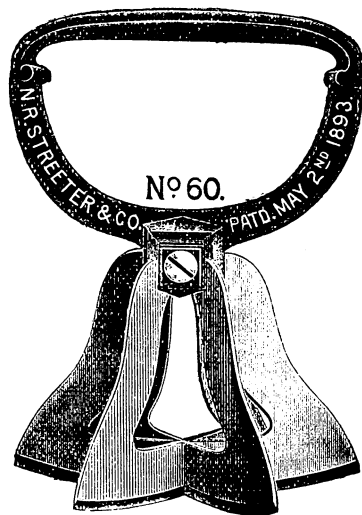
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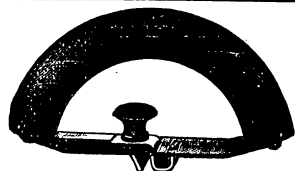
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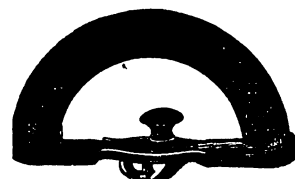


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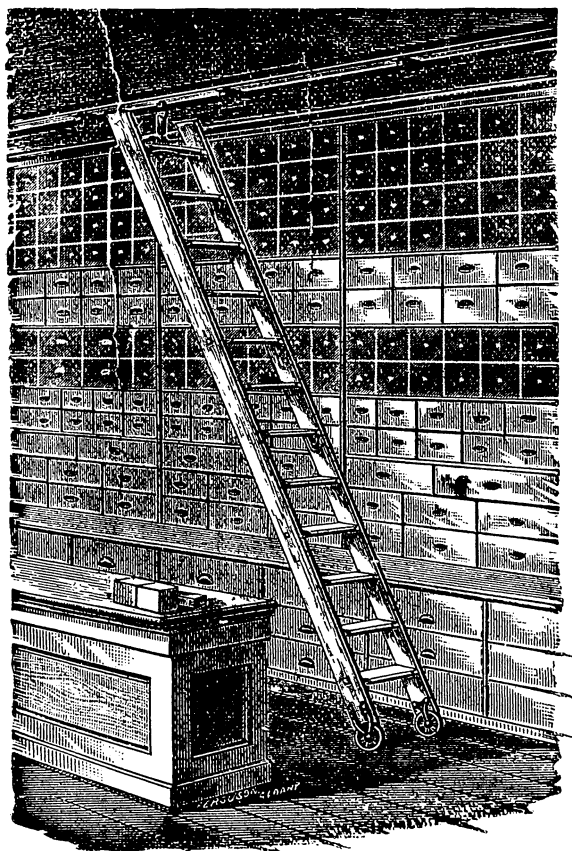
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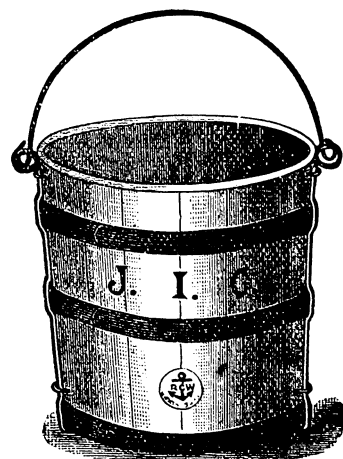
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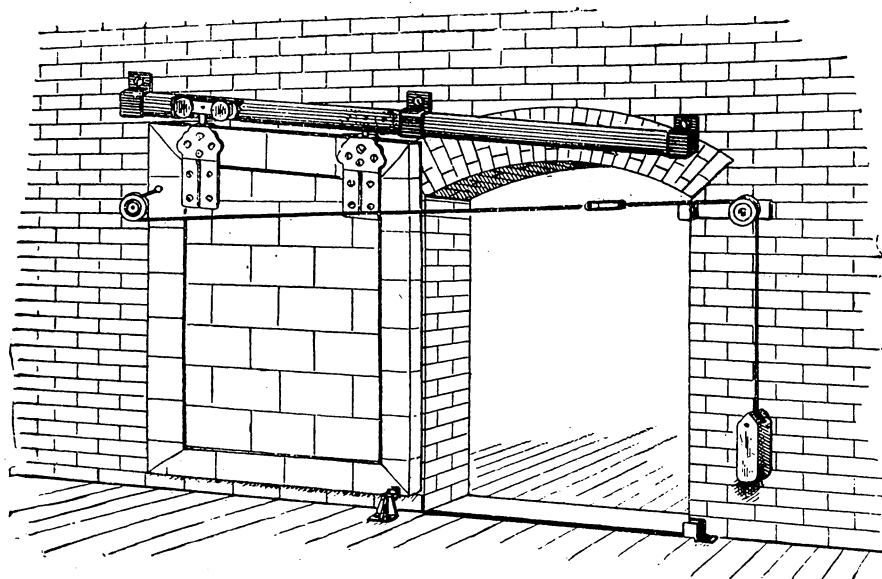
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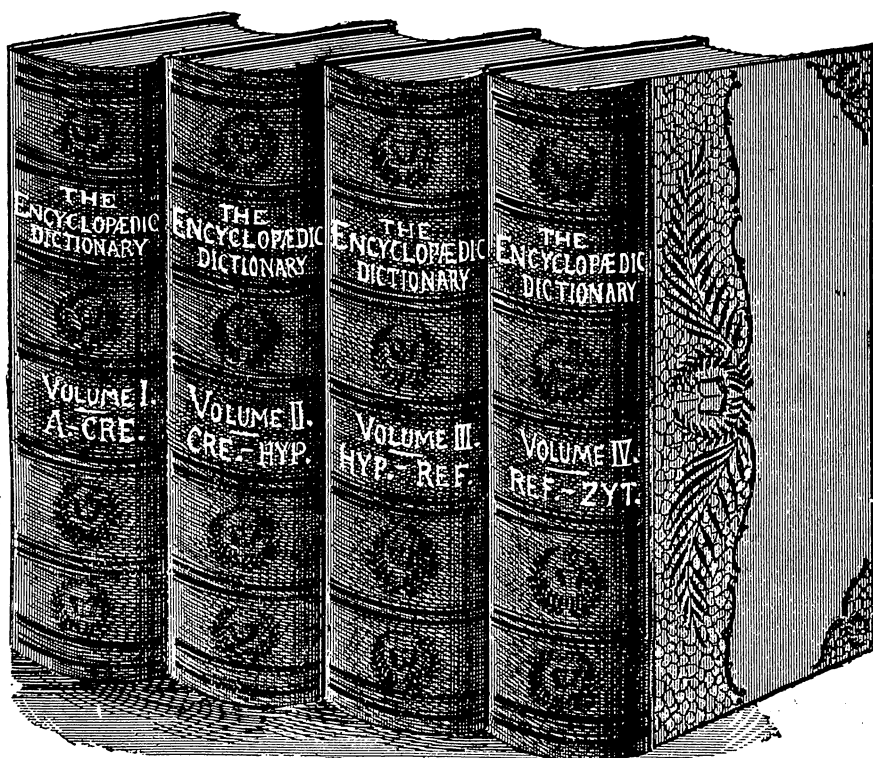
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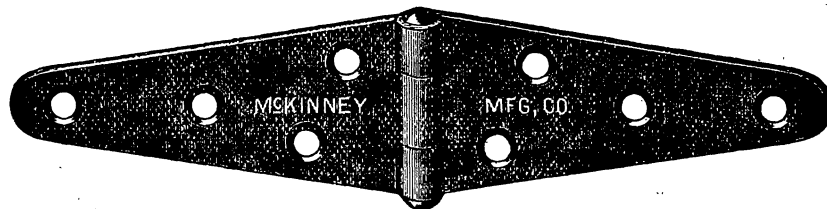
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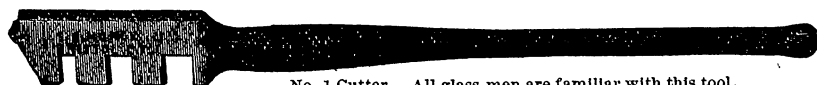
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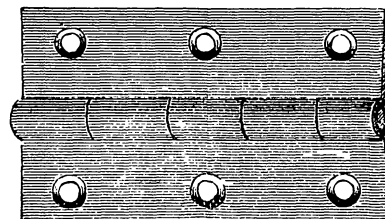
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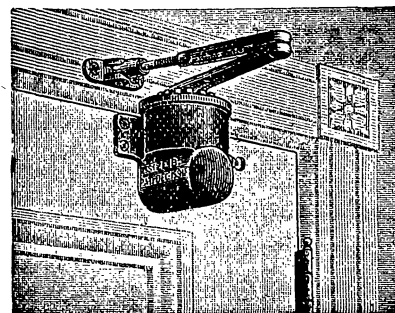
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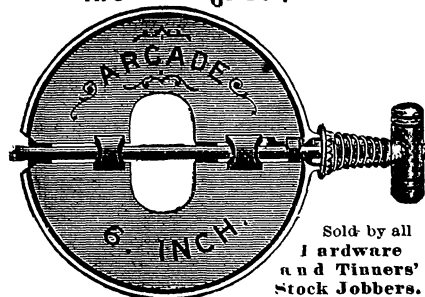


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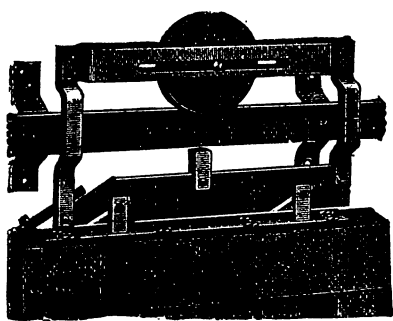
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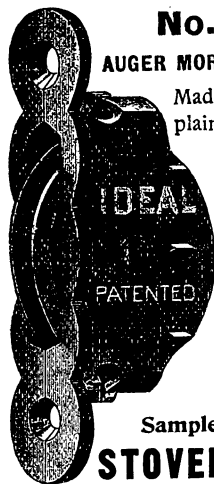
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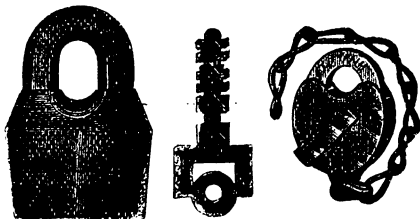
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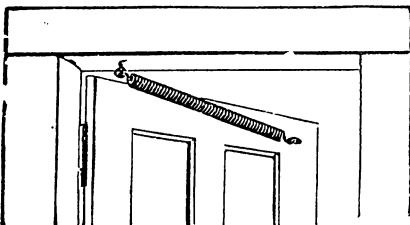
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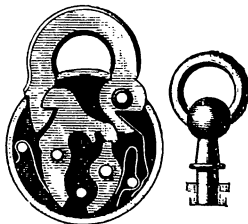
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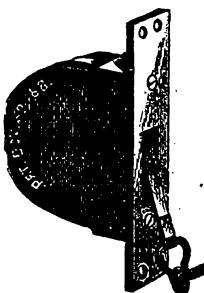
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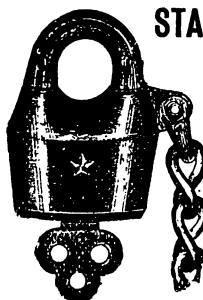
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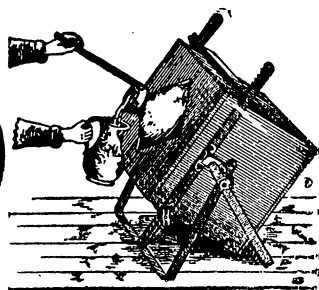
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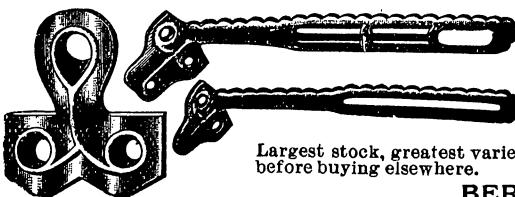
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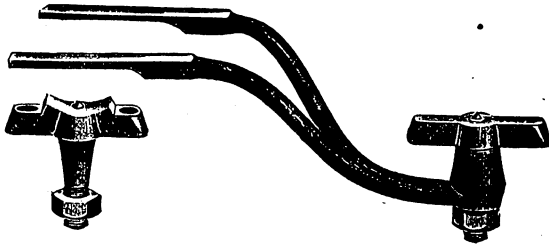
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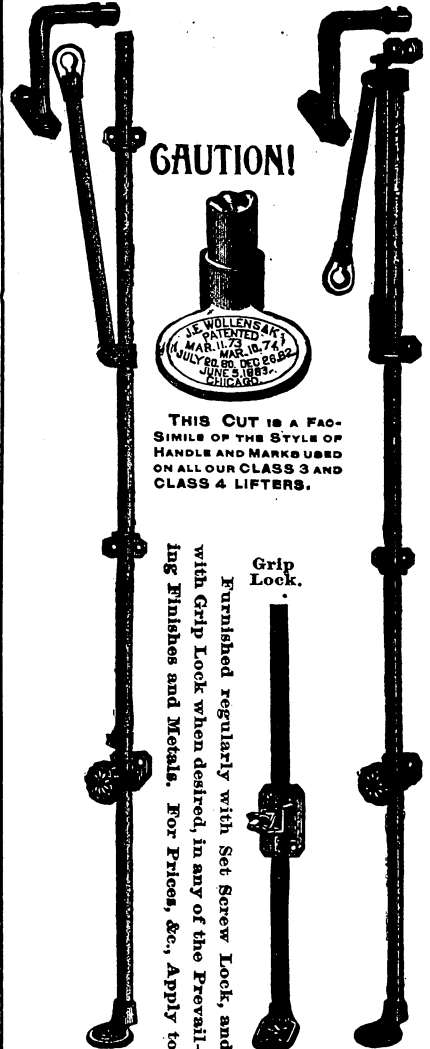
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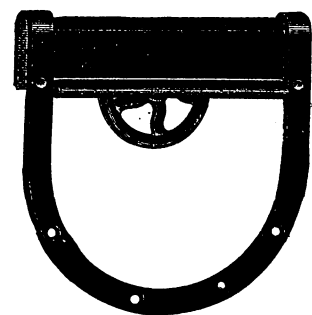
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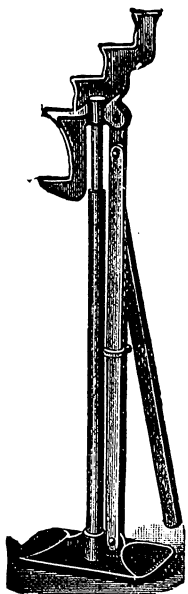
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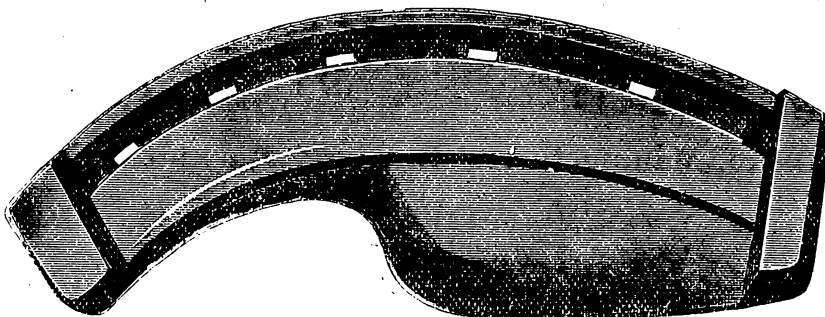
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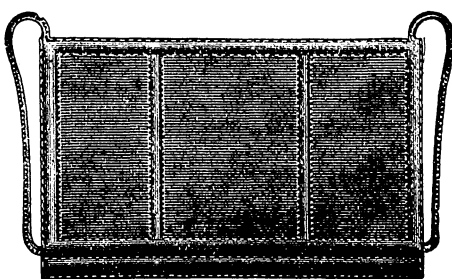
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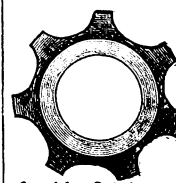
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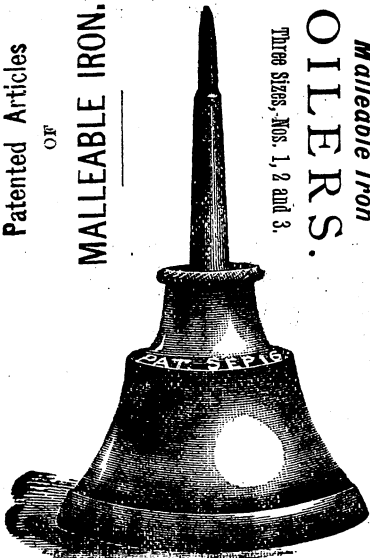
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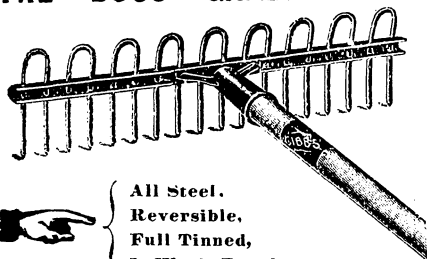
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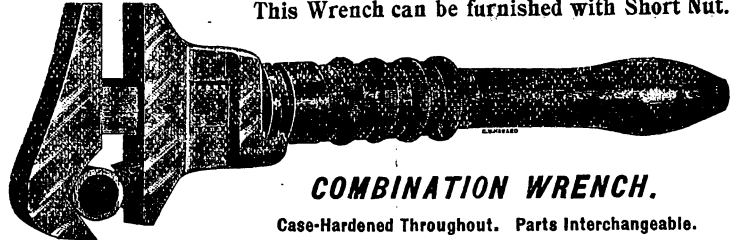
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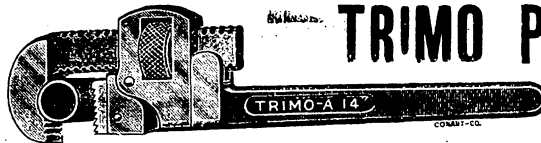


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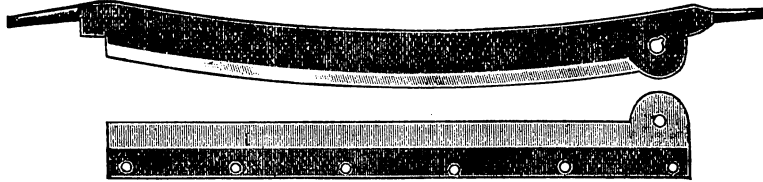
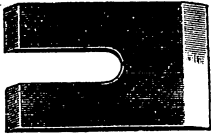
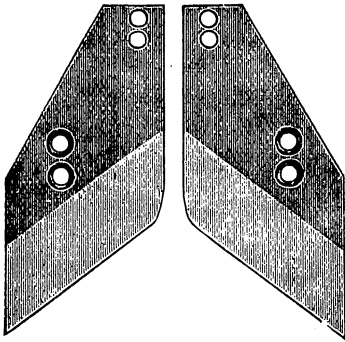
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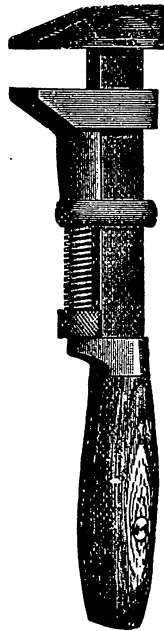
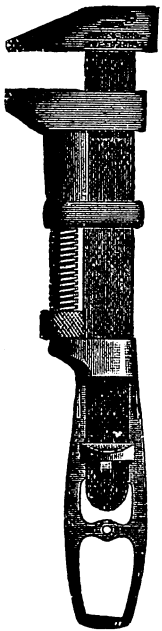


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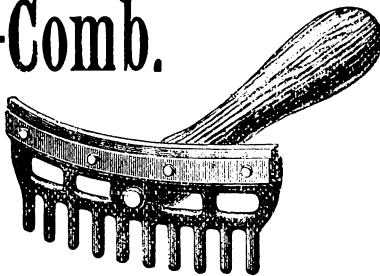
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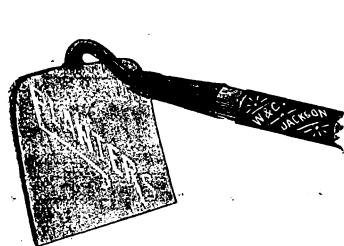
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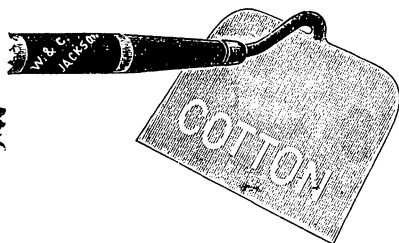
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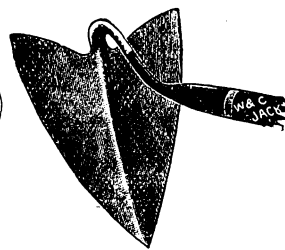
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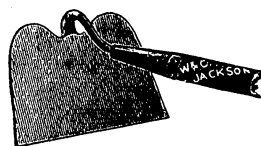
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This pamphlet contains the principal standard Hardware price-lists in as clear and compact an arrangement as possible, so as to permit their being advantageously cut out and inserted in the price book. In order to make them adapted to this use they are printed on thin and tough paper of fine quality and on only one side of the paper.

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1 1/2	.32	.37	.44
2	.35	.39	.48
3	.42	.47	.56
Quarts.			
2	.50	.56	.63
2 1/2	.53	.59	.68
3	.55	.62	.73
4	.60	.68	.84
5	.65	.75	.96
6	.70	.81	1.11
7	.75	.84	1.21
Gallons.			
2	.85	.96	1.31
2 1/2	1.05	1.18	1.56
3	1.20	1.35	1.70

The success of the effort to give the lists in small space is illustrated in many of the lists, in which a clear and condensed arrangement is secured. For instance, the wrench list occupies but 3 inches by 1/4 inch, while the list of Stove Hollow Ware, in very small space, gives the list prices on a large and important line of goods which often occupy several pages in catalogues. In several lists, such as Strap and T Hinges and Butts, a new arrangement is adopted, which is regarded as presenting these lists in a very convenient as well as condensed form.

As is obvious from the lists herewith reproduced, the shape and size of the different lists varies greatly, the aim being to give each list the smallest and most convenient arrangement possible. None of the lists are, however, more than 3 1/4 x 6 inches in size, very few of them being as large as this and most of them very much smaller. In use it is intended that they shall be trimmed closely before they are inserted in price books, when they may be attached either by one edge close to the hinge of the book, as will, perhaps, be most convenient with the larger lists, permitting the use of the entire page for memoranda, or the smaller lists may be pasted on the page in connection with the entries in regard to discounts, freights, &c. Many of the lists are so compact in arrangement as when thus inserted to leave ample room for recording quotations.

Stove Hollow Ware.

Ground and Unground.

POTS, KETTLES, ETC. (CAST IRON.)

No.	6	7	8	9	10	11
Pots.....	\$0.65	.75	.85	1.00	1.25	1.75
Kettles.....	.55	.65	.70	.85	1.00	1.40
T Kettles.....	.75	.80	.90	1.00	1.25	....
Spiders.....	.27	.30	.35	.40	.50	.60
Griddles Round	.22	.25	.27	.30	....	....
" Long..	.40	.50	.60	.75	....	....

SCOTCH AND YANKEE BOWLS.

No.	1	2	3	4	5	6
Scotch Bowls..	\$0.35	.40	.45	.50	.60	.70
Yankee Bowls..	.35	.45	.55	.65	.75	.90

Wrenches. Standard List.

Inches.	6	8	10	12	15	18	21
Black...	\$9.00	\$10.00	\$12.00	\$14.00	\$24.00	\$30.00	\$36.00
Bright..	10.00	11.00	14.00	16.00	26.00	32.00	38.00

Some merchants use this pamphlet for reference, checking off invoices, etc., as it gives the leading lists in a more convenient form than they can otherwise be obtained. The lists are, however, intended primarily to be cut out

Glue Pots. Tinned or Enameled

No. 4/0....	\$4.50	No. 2,....	\$8.40
3/0....	5.00	3.....	10.26
2/0....	5.50	4.....	12.42
0.....	6.00	5.....	14.58
1.....	6.75	6.....	16.94

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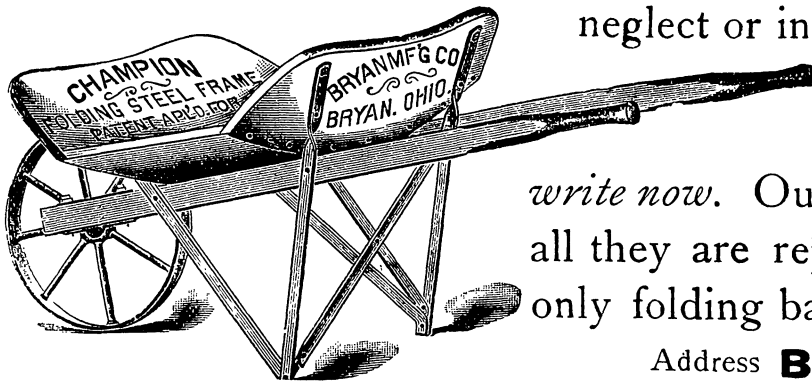
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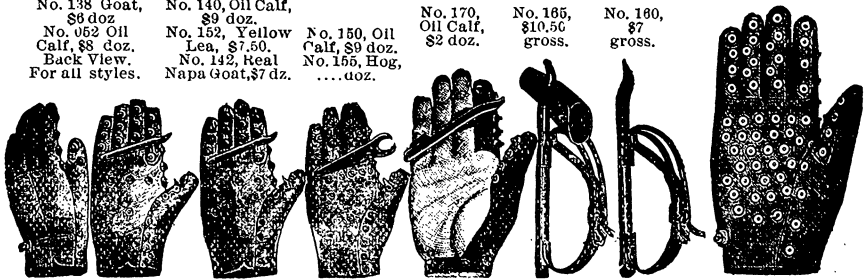
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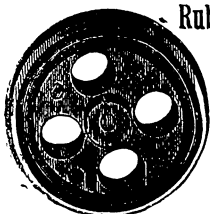
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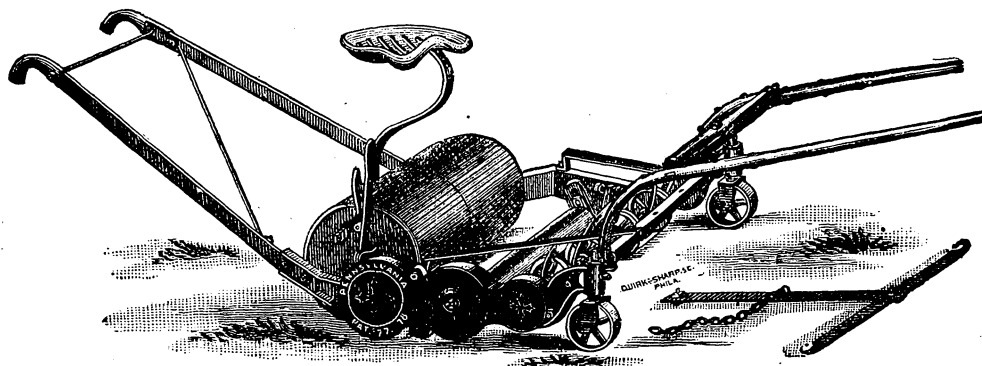
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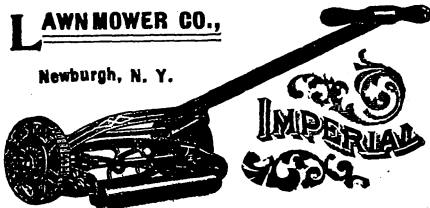


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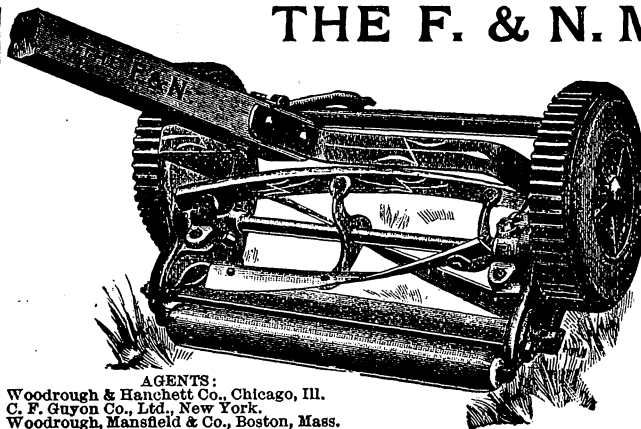
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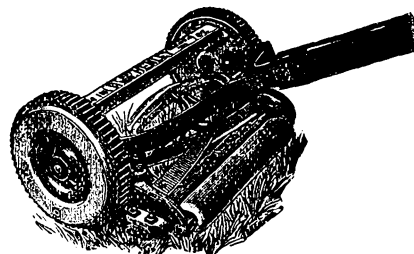
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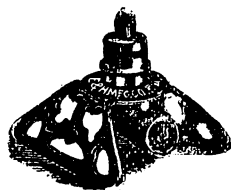
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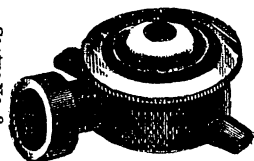
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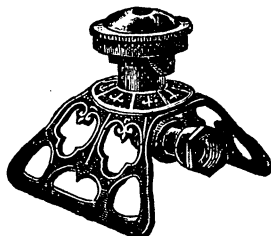


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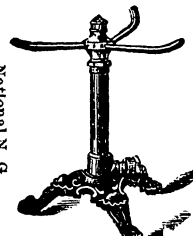
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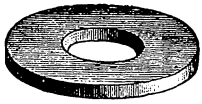
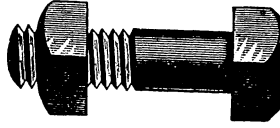
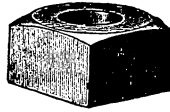
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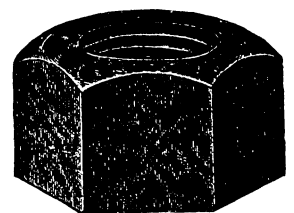
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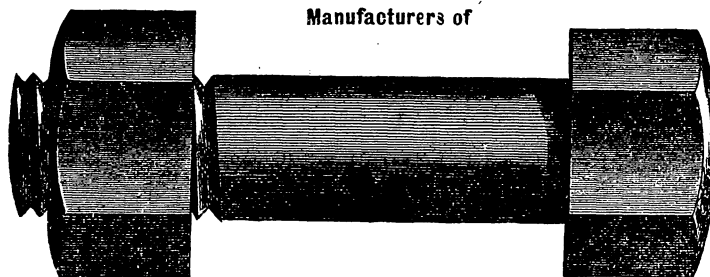
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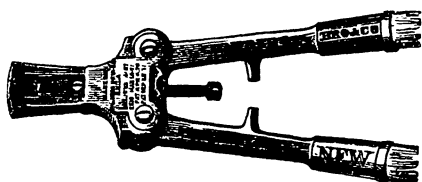
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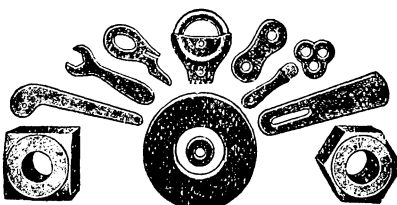
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Hardware Manufacturers.

Stearns, E. C. & Co., Syracuse, N. Y.
 Steiner, N. B. & Co., Groton, N. Y.
 Union Mfg. Co., 103 Chambers, N. Y.
 Yale & Towne Mfg. Co., Stamford, Conn.

Hardware Mfrs. Agents.

Franklin W. Co., Cleveland, O.
 Clarke, Thomas St. John, N. B.
 Graham, John H. & Co., 113 Chambers, Sickles, Sweet & Lyon, 35 Barclay, N. Y.

Hardware Specialties.

Acme Shear Co., Bridgeport, Conn.
 Berger Bros., Philadelphia, Pa.
 Enterprise Mfg. Co., Philadelphia, Pa.
 Ette & Henger Mfg. Co., St. Louis, Mo.
 Johnson, S. C., Racine, Wis.
 North Bros. Mfg. Co., Philadelphia, Pa.
 Ransom Hdw. Co., Burlington, Vt.
 Scranton Co., New Haven, Conn.
 Union Lock & Hdw. Co., Lancaster, Pa.
 Wilson, J. Fred., Worcester, Mass.
 Wrightsville Hdw. Co., Wrightsville, Pa.

Harness Snaps.

Covert Mfg. Co., West Troy, N. Y.
 Covert's Saddlery Wks., Farmer, N. Y.
 Fitch, W. & E. T., New Haven, Conn.

Hay Tools.

Myers, F. E. & Bro., Ashland, O.
 Porter, J. E. Co., Ottawa, Ill.

Heaters, Oil and Gas.

Climax Mfg. Co., Chicago, Ill.

Hoes.

Withington & Cooley Mfg. Co., Jackson, Mich.

Hog Rings and Ringers.

Oakes & Irwin, Decatur, Ill.

Hoisting Machines.

Box, Alfred & Co., 314 Green, Phila.
 Brown Hoisting & Conveying Mch. Co., Cleveland, Ohio.
 Byrnes, Jno. F. Mch. Co., Ravenna, O.
 Fulton Iron & Engine Wks., Detroit, Mich.
 Harrington, E. Son & Co., Phila.
 Lane Bros., Poughkeepsie, N. Y.
 Lidgerwood Mfg. Co., 96 Liberty, N. Y.
 Lincoln Iron Works, Rutland, Vt.
 McCoy, Jos. P. & Co., 26 Warren St.
 Marie & Beekley, Philadelphia.
 Moore Mfg. & Fdy. Co., Milwaukee, Wis.
 Morse, Williams & Co., Phila.
 Sellers, Wm. & Co., Phila. and N. Y.
 Spedel, J. G., Reading, Pa.
 Yale & Towne Mfg. Co., Stamford, Ct.

Hollow Ware.

Avery Stamping Co., Cleveland, O.
 Bronson Supply Co., Cleveland, Ohio.
 Cleveland Stamping & Tool Co., Cleveland, O.
 Stuart & Peterson Co., Phila., Pa.

Horse Nails, Makers of.

Capewell Horse Nail Co., Hartford, Conn.
 National Horse Nail Co., Vergennes, Vt.
 Putnam Nail Co., Neponset, Boston, Mass.

Horse and Mule Shoes, Makers of.

Bryden Horse Shoe Co., Catsauqua, Pa.
 Burden Iron Co., Troy, N. Y.
 Crescent Horse Shoe & Iron Co., Max Meadows, Va.
 Diamond State Iron Co., Wilmington, Del.
 Leonard, J., 446 West St., N. Y.
 Old Dominion Iron & Nail Works Co., Richmond, Va.
 Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
 Rhode Island Perkins Horse Shoe Co., Providence.
 Shoemaker & Co., Pittsburgh, Pa.
 Standard Horse Shoe Co., Boston, Mass.

Hose.

Cleveland Rubber Works, Cleveland, O.
 N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.

Husking Gloves.

Blair's Husking Gloves.

Hydrants, &c.

McLean, John, 296 & 298 Monroe, N. Y.

Hydraulic Forging.

U. S. Projectile Co., Brooklyn, N. Y.

Hydraulic Jacks.

Dudgeon, Richard, 24 Columbia, N. Y.
 McCoy, Jos. F. Co., 26 Warren St., N. Y.

Ice Cream Freezers.

White Mountain Freezer Co., Nashua, N. H.

Injectors.

Rivon-Evans Mfg. Co., Philadelphia, Pa.
 Jenkins Bros., New York.

Insurance, Boiler.

Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.

Iron and Steel, Swedish.

Lundberg, Gustaf, Boston, Mass.
 Milne, A. & Co., 1 Broadway, N. Y.

Iron Commission Brokers.

Butze, Adolph, St. Louis, Mo.
 Corning, Edw. & Co., 29 B'way, N. Y.
 Cotton, Barclay W. & Co., Phila.
 Etting, Edw. J., Philadelphia.
 Hogan, John L. & Co., Philadelphia, Pa.
 Hoffman, J. W. & Co., Philadelphia.
 Lewis, Henry & Co., Philadelphia.
 Keeley, Jerome & Co., Philadelphia.
 Lea, J. Tammall & Co., Philadelphia.
 Mohr, J. J., 430 Walnut, Philadelphia.
 Pilling & Crane, Philadelphia, Pa.
 Wister, L. & R. & Co., Phila., Pa.

Iron Ore.

Samuel, Frank, Philadelphia, Pa.

Iron, Merchants.

Barber, C. K. & Co., Philadelphia, Pa.
 Borden & Lovell, 70 West, N. Y.
 Bussenus & Cunliffe, Philadelphia.
 Corning, Edw. & Co., 29 B'way, N. Y.
 Cox, Justice, Jr., Philadelphia.
 Cotton, Barclay W. & Co., Phila.
 Hoffman, J. W. & Co., Philadelphia.
 Leonard, J., 446 West St., N. Y.
 Nicolls, Wheeler & Co., Philadelphia.
 Ogden & Wallace, 577 to 583 Greenwich St., N. Y.

Pierson & Co., 29 Broadway, N. Y.
 Thomson, W. H. & Co., Phila., Pa.
 Wallace, Wm. H. & Co., 66 B'way, N. Y.
 Whitney, A. R. & Co., 17 B'way, N. Y.
 Wilson, E. H. & Co., Philadelphia

Iron, Importers.

Abbott, Wheelock & Co., N. Y. and Boston.
 Lundberg, Gustaf, Boston, Mass.

Iron, Sheet, Manufacturers of.

Cambridge Iron & Steel Co., Cambridge, Ohio.
 W. Dewees Wood Co., Lim., McKeesport, Pa.

Ironwork, Ornamental.

Barnum, E. T., Detroit, Mich.
 Champlain Iron Co., Kenton, O.
 Ludlow-Saylor Wire Co., St. Louis, Mo.
 The Van Dorn Iron Works Co., Cleveland, O.

Keys.

Wollensak, J. F., Chicago, Ill.

Ladles.

Whiting Fdy. Equipment Co., Chicago, Ill.

Lanterns.

Rochester Lamp Co., 42 Park Place, New York.
 Steam Gauge & Lantern Co., Syracuse, N. Y.

Lathes.

Beaman & Smith, Providence, R. I.
 Dietz, Schumacher & Co., Cincinnati, O.
 Draper Machine Tool Co., Worcester, Mass.
 Harrington, E. Son & Co., Phila., Pa.
 Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
 New Haven Mfg. Co., New Haven, Conn.
 Sebastian Lathe Co., Cincinnati, O.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.

Lathing, Expanded Metal.

Chess Bros., Pittsburgh, Pa.

Lathing, Wire.

Clinton Wire Cloth Co., Clinton, Mass.
 N. J. Wire Cloth Co., Trenton, N. J.
 Wright & Colton Wire Cloth Co., Worcester, Mass.

Lawn Mowers.

Blair Mfg. Co., Springfield, Mass.
 Chadborn & Coldwell Mfg. Co., Newburg, N. Y.
 Coldwell Lawn Mower Co., Newburg, N. Y.
 F. & N. Mfg. Co., Richmond, Ind.
 Henley, M. C., Richmond, Ind.
 Supplee Hdw. Co., Phila., Pa.

Lawn Rakes.

Gibbs Mfg. Co., Canton, Ohio.
 Kohler, F. E. & Co., Canton, O.

Lawn Sprinklers.

Blair Mfg. Co., Springfield, Mass.
 Ette & Henger Mfg. Co., St. Louis, Mo.
 McGowan, John H. Co., Cincinnati, O.

Letters and Figures, Metallic.

White, A. A. & Co., Providence, R. I.

Letters, Paper.

Tablet & Ticket Co., Chicago, Ill.

Levels.

Richardson, C. F. & Son, Athol, Mass.

Locks and Knobs, Manufacturers of.

Deltz, A. E., 97 Chambers, N. Y.
 Reading Hdw. Co., Reading, Pa.
 Smith & Egge Mfg. Co., Bridgeport, Conn.

Yale & Towne Mfg. Co., Stamford, Conn.

Lubricants.

Dixon, Jos., Crucible Co., Jersey City, N. J.

Machinery.

Am. Tool Works, Cleveland, Ohio.
 Ayer, H. C. & Gleason Co., Phila., Pa.
 Barnes, W. F. & John, Rockford, Ill.
 Beaman & Smith, Providence, R. I.
 Bement, Miles & Co., Philadelphia, Pa.
 Bigelow, C. E., 45 Dey, N. Y.
 Birkall & Keeler Mfg. Co., St. Louis.
 Bliss, E. W. Co., Brooklyn, N. Y.
 Briggs, Marvin, 12 Broadway, N. Y.
 Bullard Mch. Tool Co., Bridgeport, Conn.
 Carlin's Sons, Thos., Allegheny, Pa.
 Clapp, Geo. M., agt., 74 Cortlandt, N. Y.
 Detrick & Harvey Mch. Co., Baltimore, Md.
 Dietz, Schumacher & Co., Cincinnati, Ohio.
 Fitchburg Mch. Works, Fitchburg, Mass.
 Garvin Mch. Co., Laight & Canal Sts.
 Gould & Eberhardt, Newark, N. J.
 Hamilton Mch. Tool Co., Hamilton, O.
 Harrington, E. Son & Co., Phila., Pa.
 Hartford Machine Screw Co., Hartford, Conn.
 Hendey Machine Co., Torrington, Ct.
 Hill, Clarke & Co., Boston, Mass.
 Howard & Morse, 45 Fulton St., N. Y.
 Johnson, Israel H., Jr., & Co., Phila.
 Jones & Lamson Mch. Co., Springfield, Vt.
 Lodge & Davis Mch. Tool Co., Cincinnati, O.
 Lodge & Shipley Mch. Tool Co., Cincinnati, O.
 McCabe, J. J., 68 Cortlandt, N. Y.
 Machinists' Supply Co., Rochester, N. Y.
 Manville, E. J., Mch. Co., Waterbury, Conn.
 Newark Mch. Tool Wks., Newark, N. J.
 New Haven Mfg. Co., New Haven, Ct

- Place, Geo., 145 Broadway, N. Y.
 Poole, Robt. & Son Co., Baltimore, Md.
 Powell Planer Co., Worcester, Mass.
 Prentiss Tool & Supply Co., N. Y.
 Scranton Supply & Mchry. Co., Scranton, Pa.
 Seibert, J. M., Philadelphia, Pa.
 Sellers, Wm. & Co., Phila.
 Seyfert's Sons, L. F., Philadelphia, Pa.
 Sigourney Tool Co., Hartford, Conn.
 Steptoe, J. & Co., Cincinnati, O.
 Stow Flexible Shaft Co., Ltd., Phila.
 Toomey, Frank, Philadelphia, Pa.
 Walker Mfg. Co., Cleveland, O.
 Wetherill, Robert & Co., Chester, Pa.
 Wilson, W. A., Rochester, N. Y.
- Machinery for Hardware Manufacturers.**
 Adt, Jno. & Son, New Haven, Conn.
- Machine Knives.**
 Loring, Coes & Co., Worcester, Mass.
 Loyd, John, 558-562 Water St., N. Y.
 Simonds Mfg. Co., Fitchburg, Mass.
- Machine Screws.**
 Hubbell, Harvey, Bridgeport, Ct.
 Rhode Island Tool Co., Providence, R.I.
- Machine Tools.—See Machinery.**
- Machine Work.**
 Papping, J., 58th St. & 11th Ave., N. Y. City.
- Machinists' Scales.**
 Coffin & Leighton, Syracuse, N. Y.
 Starrett, L. S., Athol, Mass.
- Machinists' Tools and Supplies.**
 King, J. M. & Co., Watford, N. Y.
 Sellers, Wm. & Co., Inc., Phila.
- Manufacturing Sites.**
 Chicago, Milwaukee & St. Paul R. R., Chicago, Ill.
- Measuring Tapes.**
 Lufkin Rule Co., Saginaw, Mich.
- Meat Choppers.**
 Enterprise Mfg. Co., Philadelphia, Pa.
- Meat Cutters.**
 North Bros. Mfg. Co., Philadelphia, Pa.
- Mechanical Instruction.**
 Correspondence School of Mechanics, Scranton, Pa.
- Merry-go-round.**
 Clark, W. J. & Co., Salem, Ohio.
- Metals.**
 Fearing, Wm. S., 100 Chambers, N. Y.
 Hendricks Bros., 49 Cliff, N. Y.
- Metal Brokers.**
 American Metal Co., N. Y.
- Metal Saws.**
 Q. & C. Co., Chicago, Ill.
- Metallurgists.**
 Britton, J. Blodgett, Phila., Pa.
- Mining Knives.**
 Palmer Hdw. Mfg. Co., Troy, N. Y.
 Streeter, N. R. & Co., Groton, N. Y.
- Mine Lamps.**
 Darby, Edw. & Sons, Phila., Pa.
 Leonard, B. E., Scranton, Pa.
- Mining Screens.**
 Harrington & King Perforating Co., Chicago, Ill.
 Howard & Morse, 45 Fulton, N. Y.
- Mining Machinery.**
 Allis, E. P. Co., Milwaukee, Wis.
- Models, Makers of.**
 Franklin, H. H. Mfg. Co., Syracuse, N. Y.
 Ideal Machine Works, Hartford, Conn.
- Molding Sand.**
 Obermayer, S. Co., Cincinnati, O.
- Motors, Water and Electric.**
 Bolgiano Mfg. Co., Baltimore, Md.
 C. & C. Electric Co., 402 and 404 Greenwich St., N. Y.
 Dallett, Thomas H. & Co., Phila., Pa.
- Nail Machinery.**
 Pittsburgh Mfg. Co., Pittsburgh, Pa.
- Nail and Tack Pullers.**
 Am. Specialty Co., Hartford, Conn.
 Scranton & Co., New Haven, Conn.
- Nails (Cut) and Spikes.**
 Borden & Lovell, 70 West, N. Y.
 Pottstown Iron Co., Pottstown, Pa.
 Riverside Iron Wks., Wheeling, W. Va.
 Valley Steel Co., St. Louis, Mo.
- Nickel Plated Supplies.**
 Eddy Electric Mfg. Co., Windsor, Conn.
- Nickel Plating.**
 Rhodes, L. E. Co., Hartford, Conn.
- Norway Shapes, Rollers of.**
 Rowland, William & Harvey, Frankford, Philadelphia.
- Novelty Manufacturers.**
 Franklin, H. H. Mfg. Co., Syracuse, N. Y.
 Ideal Machine Works, Hartford, Conn.
- Nut Machines.**
 Dunham Nut Co., Unionville, Ct.
- Nuts, Bolts, &c., Makers of.**
 American Bolt Co., Lowell, Mass.
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Dunham Nut Co., Unionville, Conn.
 Haskell, Wm. H. Co., Pawtucket, R. I.
 Mt. Carmel Bolt Co., Mt. Carmel, Conn.
 Pennsylvania Bolt & Nut Co., Lebanon, Pa.
 Port Chester Bolt & Nut Co., Port Chester, N. Y.
 Rhode Island Tool Co., Providence, R. I.
 Russell, Burdall & Ward, Port Chester, N. Y.
 Sternbergh, J. H. & Son, Reading, Pa.
 Wilson, J. Fred., Worcester, Mass.
 Wm. H. Haskell Co., Pawtucket, R. I.
- Oilers.**
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Oilless Anti-Friction Metals.**
 North American Metalline Co., Long Island City, N. Y.
- Oil Stones.**
 Pike Mfg. Co., Pike Station, N. H.
- Ores.**
 Wister, Francis, Philadelphia, Pa.
- Ox Shoes.**
 Millers Falls Co., 93 Reade St., N. Y.
 Scranton Forging Co., Scranton, Pa.
- Packing.**
 Morrison, Robert, St. Louis, Mo.
 N. Y. Belting & Packing Co., Ltd., N. Y.
- Padlocks.**
 Ames Sword Co., Chicopee, Mass.
 Fraim, E. T., Lancaster, Pa.
 Union Lock & Hdw. Co., Lancaster, Pa.
 Wolf, W. & L., Phila., Pa.
- P-ils.**
 Richmond Cedar Wks., Richmond, Va.
- Paint.**
 Garry Iron & Steel Roofing Co., Cleveland, O.
- Paint Burners.**
 Dangler Stove & Mfg. Co., Cleveland, Ohio.
- Paint Cans.**
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Pants Stretcher.**
 Covert Mfg. Co., West Troy, N. Y.
- Patent Solicitors.**
 Butler, C. N., Phila., Pa.
 Jenner, H. W. T., Washington, D. C.
 Howson & Howson, Philadelphia and Washington.
 Stocking, E. B., Washington, D. C.
- Pattern Letters.**
 Wells, Heber, 157 William St., N. Y.
- Perforated Metal.**
 Clinton Wire Cloth Co., Clinton, Mass.
 Harrington & King Perforating Co., Chicago, Ill.
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.
- Phosphor Bronze.**
 Phosphor Bronze Smelting Co., Limited, Philadelphia.
- Phosphor Tin.**
 Crescent Phosphorized Metal Co., Philadelphia, Pa.
 Halk & Naumann, 516 Pearl, N. Y.
- Picks and Mattocks.**
 Plumb, Fayette R., Philadelphia, Pa.
- Pig Iron.**
 Houston, C. B. & Co., Philadelphia, Pa.
 Montour Iron & Steel Co., Danville, Pa.
 Naylor & Co., 45 Wall, N. Y.
 Pilling & Crane, Philadelphia, Pa.
 Samuel, Frank, Philadelphia, Pa.
- Pig Iron Storage.**
 Am. Pig Iron Storage Warrant Co., 44 Wall, N. Y.
- Pile Drivers.**
 Vulcan Iron Works, Chicago, Ill.
- Pipe, Bent.**
 National Pipe Bending Co., New Haven, Conn.
- Pipe Cutting and Threading Machines.**
 Armstrong Mfg. Co., Bridgeport, Conn.
 Bignall & Keeler Mfg. Co., St. Louis, Mo.
 Detrick & Harvey Mch. Co., Baltimore, Md.
 Merrill Mfg. Co., Toledo, O.
 Pancoast, Henry B. & Co., Phila.
 Saunders' Sons, D., Yonkers, N. Y.
 Walworth Mfg. Co., Boston, Mass.
- Pipe Grips.**
 Prentiss Vise Co., 44 Barclay, N. Y.
- Pipes, Fittings, &c., Makers of.**
 McNab & Harlin Mfg. Co., N. Y.
- Pipe, Water and Gas, Makers of.**
 Donaldson Iron Co., Emaus, Pa.
 Riverside Iron Works, Wheeling, W. Va.
 Wood, R. D. & Co., Philadelphia, Pa.
- Plane Irons, Manufacturers of.**
 Buck Bros., Millbury, Mass.
 Buck, Chas., Millbury, Mass.
- Planers.**
 Detrick & Harvey Mch. Co., Baltimore, Md.
 New Haven Mfg. Co., New Haven, Conn.
 Powell Planer Co., Worcester, Mass.
 Wilson, W. A., Worcester, Mass.
- Planes, Manufacturers of.**
 Stanley Rule & Level Co., N. Y.
- Plated Ware.**
 Boardman, L. & Son, New Haddam, Ct.
 Holmes & Edwards Silver Co., Bridgeport, Conn.
 Rogers, Wm. Mfg. Co., Hartford, Ct.
- Plate, Iron and Steel, Mfrs. of.**
 Atna-Standard Iron & Steel Co., Bridgeport, O.
 Lenses Iron & Steel Co., Coatesville, Pa.
 Mahoning Valley Iron Co., Youngstown, Ohio.
 Moorhead-McLean Co., Pittsburgh, Pa.
 McIlvain & Sons, Reading, Pa.
 Pottstown Iron Co., Pottstown, Pa.
 Pottsville Iron & Steel Co., Pottsville, Pa.
 Singer, Nimick & Co., Pittsburgh, Pa.
 The Mahoning Valley Iron Co., Youngstown, O.
 Wood, Alan Co., Philadelphia.
- Plating, Nickel, Brass and Silver.**
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Polishing Machines.**
 Watson & Stillman, 204 E. 43d, N. Y.
- Post Hole Diggers.**
 Gibbs Mfg. Co., Canton, Ohio.
 Kohler, F. E. & Co., Canton, O.
- Poultry Nettings.**
 Barnum, E. T., Detroit, Mich.
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
 N. J. Wire Cloth Co., Trenton, N. J.
 "Silver Finish."
 Tyler Wire Works Co., W. S., Cleveland, O.
 Wright & Colton Wire Cloth Co., Worcester, Mass.
- Powder.**
 Laflin & Rand Powder Co., 29 Murray, New York Powder Co., 62 Liberty St., N. Y.
- Power Hammers.**
 Dienelt & Eisenhardt, Philadelphia.
 Dupont Mfg. Co., St. Johnsbury, Vt.
 Jenkins & Lingle, Bellefonte, Pa.
 Miner & Peck Mfg. Co., New Haven Conn.
 Scranton & Co., New Haven, Conn.
- Power Transmitting Machinery.**
 Dodge Mfg. Co., Mishawaka, Ind.
- Presses, Dies, &c.**
 E. W. Bliss Co., Brooklyn, N. Y.
 Crosby, G. A. & Co., Chicago, Ill.
 Siles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Mch. Co., Waterbury Ct.
- Presses, Power, Makers of.**
 Bliss, E. W. Co., Brooklyn, N. Y.
 Manville, E. J. Mch. Co., Waterbury, Ct.
 Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
- Printing and Embossing.**
 Griffith, Axtell & Cady Co., Holyoke, Mass.
- Pulleys.**
 Brown, A. & F., 17 Dey St., N. Y.
 Dodge Mfg. Co., Mishawaka, Ind.
 Keystone Clutch Mch. Wks., Phila., Pa.
 Reading Wood Pulley Co., Reading, Pa.
- Pulverizing Mills.**
 Bradley Pulverizer Co., Boston, Mass.
- Pumping Machinery.**
 Dean Bros. Steam Pump Works, Indianapolis, Ind.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Hooker-Corville Steam Pump Co., St. Louis, Mo.
 McGowan, J. H. & Co., Cincinnati, O.
 Maslin, J. & Son, Jersey City, N. J.
 Norwalk Iron Works Co., So. Norwalk, Conn.
 Southwark Fdy. & Mch. Co., Phila., Pa.
 Valley Pump Works, Easthampton, Mass.
 Worthington, Henry R., 86 and 88 Liberty St., N. Y.
- Pumps, Makers of.**
 Deming Co., Salem, O.
 Douglas, W. & B., Middletown, Conn.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Millar, C. & Sons, Utica, N. Y.
 Myers, F. E. & Bro., Ashland, O.
 Peters Pump Co., Kewanee, Ill.
 Porter, J. E. Co., Ottawa, Ill.
 Red Jacket Mfg. Co., Davenport, Iowa.
- Punches.**
 Richards, I. P., Providence, R. I.
- Punches and Shears, Hand and Power.**
 E. W. Bliss Co., Brooklyn, N. Y.
 Crosby, G. A. & Co., Chicago, Ill.
 Stiles & Parker Press Co., Brooklyn, N. Y.
 Waterbury Farrel Foundry & Machine Co., Waterbury, Conn.
 Watson & Stillman, 204 E. 43d, N. Y.
- Rails, Old and New.**
 Perry, W. H. & Co., Providence, R. I.
- Rat and Mouse Traps.**
 Burditt & Williams, Boston, Mass.
 Estey, W. S., 65 Fulton, N. Y.
 Erceisor Cutlery Co., Worcester, Mass.
- Razor, Manufacturers of.**
 Millbury Razor Co., Millbury, Mass.
- Reducing Valves.**
 D'Este & Seeley Co., Boston, Mass.
- Reels.**
 Hendryx, A. B. Co., New Haven, Conn.
- Refrigerator Door Fasteners.**
 Conroy, P. J. & Co., Philadelphia.
- Rivets.**
 Blake & Johnson, Waterbury, Conn.
 Burden Iron Co., Troy, N. Y.
 Clark & Cowles, Plainville, Conn.
 Cobb & Drew, Plymouth, Mass.
 Sternbergh, J. H. & Son, Reading, Pa.
 Townsend, W. P. & Co., New Brighton, Pa.
- Riveting Machines.**
 Adt, Jno. & Sons, New Haven, Conn.
- Rolling Mill Machinery.**
 Birmingham Iron Fdry, Birmingham, Conn.
 Booth, The Lloyd Co., Youngstown, O.
 Leechburg Foundry & Mch. Co., Pittsburgh, Pa.
 Morgan Construction Co., Worcester, Mass.
 Robinson-Rea Mfg. Co., Pittsburgh.
 Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
 Trethewey Mfg. Co., Pittsburgh, Pa.
 Waterbury Farrel Foundry & Mch. Co., Waterbury Conn.
- Rolls, Chilled, Sand and Steel.**
 Birmingham Iron Foundry, Birmingham, Conn.
 Booth, The Lloyd Co., Youngstown, O.
- East Chicago Fdry Co., Chicago, Ill.**
 Garrison, A. Fdry. Co., Pittsburgh, Pa.
 Robinson-Rea Mfg. Co., Pittsburgh, Pa.
 Seaman, Sleeth & Black, Pittsburgh.
 Totten & Hogg Iron and Steel Fdry. Co., Pittsburgh, Pa.
- Roofing.**
 Berlin Iron Bridge Co., E. Berlin, Conn.
 Cincinnati Corrugating Co., Piqua, O.
 N. Y. Iron Roofing & Corrugating Co., Jersey City, N. J.
- Rope and Web Goods.**
 Covert Mfg. Co., West Troy, N. Y.
 Covert's Saddlery Wks., Farmer, N. Y.
- Rope Wheels.**
 Cresson, Geo. V. Co., Philadelphia, Pa.
- Rubber Goods.**
 Canfield, H. O., Bridgeport, Conn.
- Rules, Manufacturers of.**
 Stanley Rule & Level Co., 29 Chambers.
- Sad Irons.**
 Enterprise Mfg. Co., Phila., Pa.
 Streeter, N. R. & Co., Groton, N. Y.
- Sad Irons, Gas.**
 Bolgiano Mfg. Co., Baltimore, Md.
- Sand Paper.**
 Baeder, Adamson & Co., Phila., Pa.
- Sash Balances.**
 Caldwell Mfg. Co., Rochester, N. Y.
 Pullman Sash Balance Co., Rochester, N. Y.
- Sash Cords and Chains.**
 Morton, Thos., 65 Elizabeth, N. Y.
 Samson Cordage Works, Boston, Mass.
 Smith & Egge Mfg. Co., Bridgeport.
- Sash Pulleys.**
 Palmer Hardware Mfg. Co., Troy, N. Y.
- Sash Weights.**
 Brown, E. E. & Co., Philadelphia, Pa.
 Norton Bros., Chicago, Ill.
- Saw Filing Machines.**
 Diston, Henry & Sons, Philadelphia, Pa.
- Saws, Makers of.**
 Atkins, E. C. & Co., Indianapolis, Ind.
 Disston, Henry & Sons, Phila., Pa.
 Disston Saw Co., Newark, N. J.
 Simonds Mfg. Co., Fitchburg, Mass.
- Saw Sets.**
 Taintor Mfg. Co., 84-86 Chambers, N. Y.
- Saw Vises.**
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Sawing Machines.**
 Q. & C. Co., Chicago, Ill.
- Scales, Manufacturers of.**
 Buffalo Scale Co., Buffalo, N. Y.
 Chatillon, John & Sons, 85-89 Cliff, N. Y.
- Scrapers, Road.**
 Sidney Steel Scraper Co., Sidney, O.
- Screen Door Braces.**
 Clark, W. J. & Co., Salem, Ohio.
- Screens, Coal and Ore.**
 Hendrick Mfg. Co., Ltd., Carbondale, Pa.
- Screw Cutting Machinery.**
 Wells Bros. & Co., Greenfield, Mass.
 Wiley & Russell Mfg. Co., Greenfield, Mass.
- Screw Drivers.**
 Brown, R. H. & Co., New Haven, Conn.
 Mayhew, H. H. Co., Shelburne Falls, Mass.
- Screw Machinery.**
 Hartford Machine Screw Co., Hartford, Conn.
- Screw Plate and Pipe Cutter.**
 Jarecki Mfg. Co., Erie, Pa.
- Screws, Makers of.**
 American Screw Co., Providence, R. I.
 Blake & Johnson, Waterbury, Conn.
 Wm. H. Haskell Co., Pawtucket.
 Miles, F. S., 205 Quarry, Philadelphia.
 Reynolds & Co., New Haven, Conn.
 Worcester Machine Screw Co., Worcester, Mass.
- Scroll Saws.**
 Barnes, W. F. & John, Rockford, Ill.
 Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Scythe Stones and Whetstones.**
 Pike Mfg. Co., Pike Stat'n, N. H.
 Cleveland Stone Co., Cleveland, O.
- Sewer Pipes.**
 Sharon Clay Mfg. Co., Sharon, Pa.
- Shade Hangers.**
 South, W. A. Co., Salem, Mass.
- Shafting, Makers of.**
 Brown, A. & F., 17 Dey St., N. Y.
 Cresson, Geo. V. Co., Philadelphia, Pa.
 Fairmount Mch. Co., Philadelphia, Pa.
 Sellers, Wm. & Co., Inc., Phila., Pa.
 Stow Mfg. Co., Binghamton, N. Y.
- Shaft Support.**
 Decatur Shaft Support Co., Decatur, Ill.
- Shaped Iron and Steel, Manufacturers of.**
 Atna-Standard Iron & Steel Co., Bridgeport, O.
 East Chicago Fdry Co., Chicago, Ill.

- Allentown Rolling Mill**, Allentown, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Passaic Rolling Mill Co., Paterson, N.J.
The Phoenix Iron Co., Phila., Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
 Roberts, A. & P. & Co., Phila., Pa.
- Shears and Scissors.**
 Acme Shear Co., Bridgeport, Conn.
 Clauss Shear Co., Fremont, Ohio.
 Heinischs, R. Sons Co., Newark, N. J.
- Sheet Iron and Steel, Manufacturers of.**
 Aetna-Standard Iron and Steel Co., Bridgeport, O.
 Cambridge Iron & Steel Co., Cambridge, Ohio.
 Jersey City Galvanizing Co., 112 John St., N. Y.
 Mahoning Valley Iron Co., Livingston, Ohio.
 Morehead-McCleane Co., Pittsburgh, Pa.
 Pierson & Co., 29 Broadway, N. Y.
 Singer, Nimick & Co., Ltd., Pittsburgh, Pa.
 The Mahoning Valley Iron Co., Youngstown, O.
 Alan Wood Co., Philadelphia.
 W. Dewees Wood Co., McKeesport, Pa.
- Sheet Zinc.**
 Matthiessen & Hegeler Zinc Co., La Salle, Ill.
- Shelf Brackets.**
 Atlas Mfg. Co., New Haven, Conn.
 Stanley Works, New Britain, Conn.
- Show Cases.**
 Union Show Case Co., Chicago, Ill.
- Sinks.**
 Douglas, W. & B., Middletown, Conn.
- Skates, Ice.**
 Dame, Stoddard & Kendall, Boston, Mass.
 Graham, John H. & Co., 118 Chambers Street, N. Y.
 Keene Mfg. Co., Keene, N. H.
 Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Skates, Roller.**
 Henley, M. C., Richmond, Ind.
 Winslow, Sam'l., Skate Mfg. Co., Worcester, Mass.
- Slag Machines.**
 Cambria Iron Co., Johnstown, Pa.
- Slaw Cutters**
 Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
- Smelting Works.**
 Reeves, Paul S., 760 S. Broad, Phila.
- Soldering Coppers.**
 Clendenin Bros., Baltimore, Md.
 Covert Mfg. Co., West Troy, N. Y.
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 Ostrander, W. R. & Co., 204 Fulton St., N. Y.
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- Spelter.**
 Matthiessen & Hegeler Zinc Co., La Salle, Ill.
- Spoons and Forks.**
 Boardman, L. & Son, New Haddam, Conn.
 Holmes & Edwards Silver Co., Bridgeport, Conn.
 Rogers, The Wm. Mfg. Co., Hartford, Conn.
- Sporting Goods.**
 Hartley & Graham, 313-315 B'way, N. Y.
 Schoverling, Daly & Gales, 302 Broadway, N. Y.
- Spring.**
 Clark & Cowles, Plainville, Ct.
 Colled Wire Belting Co., Jersey City, N. J.
 Dunbar Bros., Bristol, Conn.
 Miller & Van Winkle, Brooklyn, N. Y.
 Morgan Spring Co., Worcester, Mass.
 Roland, Wm. & Harvey, Phila., Pa.
 Sabin Machine Co., Montpelier, Vt.
 Washburn & Moen Mfg. Co., Worcester, Mass.
 Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
- Spring Hinges.**
 Bommer Bros., Brooklyn, N. Y.
 Chicago Spring Butt Co., Chicago, Ill.
 Pullman Sash Balance Co., Rochester, N. Y.
 Stover Mfg. Co., Freeport, Ill.
 Van Wagoner & Williams Hdw. Co., 14 Warren St., N. Y.
- Stamping Works.**
 Avery Stamping Co., Cleveland, O.
 Cleveland Stamping & Tool Co., Cleveland, O.
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 Cobb & Drew, Plymouth, Mass.
 Titchener, E. H. & Co., Binghamton, N. Y.
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 Dienelt & Eisenhart, Philadelphia.
 Dudgeon, Richard, 24 Columbia Street, N. Y.
 Trethewey Mfg. Co., Pittsburgh, Pa.
- Steam Heating & Oil Separators.**
 Webster, Warren & Co., Camden, N. J.
- Steam Separators.**
 Harrison Safety Boiler Wks., Phila., Pa.
 Webster, Warren & Co., Camden, N. J.
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 Lunkenheimer Co., Cincinnati, O.
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 D'Este & Seeley Co., Boston, Mass.
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 Superior Steel Co., Pittsburgh, Pa.
 Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel Figures and Alphabet.**
 Hoefig, C. W., 52 Fulton St., N. Y.
 Krogerud, W., 61 Fulton St., N. Y.
- Steel Importers.**
 Abbott, Wheelock & Co., N. Y. and Boston.
 Hobson, Francis, Seaman & Co., 97 John St., N. Y.
 Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
 Milne, A. & Co., 1 Broadway, N. Y.
 Newton & Shipman, 83 John, N. Y.
 Wetherell Bros., 93 Liberty St., N. Y.
 Whitney, A. R. & Co., B'dway, N. Y.
 Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Steel (Musher's Special).**
 Jones, B. M. & Co., Boston.
- Steel Manufacturers.**
 Aetna-Standard Iron & Steel Co., Bridgeport, O.
 Bethlehem Iron Co., S. Bethlehem, Pa.
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 Carbon Steel Co., Pittsburgh, Pa.
 Chester Steel Castings Co., Phila., Pa.
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 Crescent Steel Co., Pittsburgh, Pa.
 Frankford Steel Co., Philadelphia.
 Gaudier Steel Department of Cambria Iron Co., Johnstown, Pa.
 Hobson, Francis, Seaman & Co., 97 John St., N. Y.
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 La Belle Steel Co., Pittsburgh, Pa.
 Lukens Iron & Steel Co., Coatesville, Pa.
 Moorhead-McCleane Co., Pittsburgh, Pa.
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 Singer, Nimick & Co., Pittsburgh, Pa.
 Superior Steel Co., Pittsburgh, Pa.
 Valley Steel Co., St. Louis, Mo.
 Ordway, S. & C., Sheffield, Eng.
 Wetherell Bros., 93 Liberty, N. Y.
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- Steel, Manufacturers' Agents.**
 Barnes, C. K. & Co., Philadelphia, Pa.
 Butze, Adolph, St. Louis, Mo.
 Corning, Edw. & Co., 29 B'way, N. Y.
 Lindsay, Jas. G. & Co., Phila., Pa.
 Pierson & Co., 29 Broadway, N. Y.
- Steel Rails, Manufacturers of.**
 Bethlehem Iron Co., S. Bethlehem, Pa.
 Cambria Iron Co., Johnstown, Pa.
 Montour Iron & Steel Co., Danville, Pa.
 Riverside Iron Wks., Wheeling, W. Va.
- Steel, Tool.**
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 La Belle Steel Co., Pittsburgh, Pa.
- Step Ladders, Rolling.**
 Bicycle Step Ladder Co., Chicago, Ill.
 Coburn Trolley Track Mfg. Co., Holyoke, Mass.
 Croissant, M., Albany, N. Y.
- Stocks and Dies.**
 Armstrong Mfg. Co., Bridgeport, Conn.
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 Butterfield & Co., Derby Line, Vt.
 Hart Mfg. Co., Cleveland, O.
 Oster Mfg. Co., Cleveland, O.
 Saunderson's Sons, D., Yonkers, N. Y.
 Wells Bros. & Co., Greenfield, Mass.
 Willey & Russell Mfg. Co., Greenfield, Mass.
- Stone Saws and Planers.**
 Lincoln Iron Works, Rutland, Vt.
- Store Fixtures.**
 Wernicke Co., Minneapolis, Minn.
- Stove Linings.**
 Ostrander Fire Brick Co., Troy, N. Y.
- Stove Pipe Thimbles.**
 Cheney, S. & Son, Manlius, N. Y.
- Stove Trucks.**
 Randall & Ward, Le Roy, N. Y.
 Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
- Stoves, Gasoline.**
 Standard Lighting Co., Cleveland, O.
- Street Lamps.**
 Rochester Lamp Co., 42 Park Place, New York.
 Steam Gauge & Lantern Co., Syracuse, N. Y.
- Structural Iron Work.**
 Berlin Iron Bridge Co., East Berlin, Conn.
 Lindsay, Jas. G. & Co., Phila., Pa.
- Sulphuric Acid.**
 Matthiessen & Hegeler Zinc Co., La Salle, Ill.
- Tacks, Brads, Staples, &c.**
 Atlas Tack Corporation, Boston, Mass.
 Chess Bros., Pittsburgh, Pa.
 Clendenin Bros., Baltimore, Md.
 Cobb & Drew, Plymouth, Mass.
 Grand Crossing Tack Co., Grand Crossing, Ill.
 Shelton Co., Birmingham, Conn.
- Tack and Nail Machinery.**
 Kimbal Bros. & Co., Brockton, Mass.
- Taps and Dies.**
 Butterfield & Co., Derby Line, Vt.
 Carpenter, J. M., Tap & Die Co., Pawtucket, R. I.
- Manning, Maxwell & Moore**, 111 Liberty St., N. Y.
 Wells Bros. & Co., Greenfield, Mass.
 Willey & Russell Mfg. Co., Greenfield, Mass.
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- Testing Machines.**
 Riehle Bros. Testing Mach. Co., Phila.
- Theatrical Hardware.**
 Wollensak, J. F., Chicago, Ill.
- Thill Springs.**
 Frost Thill Spring Co., Boston, Mass.
 Sabin Machine Co., Montpelier, Vt.
- Thrust Collars.**
 Gouverneur Mach. Co., Gouverneur, N. Y.
- Time Record.**
 Scattergood, H. W., Phila., Pa.
- Tin Plate Machinery.**
 Lloyd Booth Co., Youngstown, Ohio.
 Phillips, F. R., Philadelphia, Pa.
- Tire Upsetters.**
 Butts & Ordway, Boston, Mass.
- Toe Calks, Steel.**
 Burke, P. F., Boston, Mass.
- Tool Chests.**
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- Tool Holders.**
 Armstrong Bros. Tool Co., Chicago, Ill.
- Tools.**
 Brown, R. H. & Co., New Haven, Conn.
 Mayhew, H. H. Co., Shelburne Falls, Mass.
 Millers Falls Co., 93 Reade, N. Y.
 Richardson, C. F. & Son, Athol, Mass.
 Standard Tool Co., Athol, Mass.
 Stanley Rule & Level Co., 29 Chambers, Starrett, L. S., Athol, Mass.
 Stearns, E. C. & Co., Syracuse, N. Y.
 Stevens, J., Arms & Tool Co., Chicopee Falls, Mass.
- Tools, Blacksmith and Wheelwright.**
 Buffalo Forge Co., Buffalo, N. Y.
 Butts & Ordway, Boston, Mass.
 Champion Blower & Forge Co., Lancaster, Pa.
 Oster Mfg. Co., Cleveland, Ohio.
 Plumb, Fayette R., Philadelphia, Pa.
 Willey & Russell Mfg. Co., Greenfield, Mass.
- Tools, Steam and Gas Fitters'.**
 Saunders' Sons, D., Yonkers, N. Y.
- Torches, Oil and Gasoline.**
 Dangler Stove & Mfg. Co., Cleveland, O.
 Schneider & Trenkamp Co., Cleveland, Ohio.
 Standard Lighting Co., Cleveland, O.
- Transom Lifters.**
 Wollensak, J. F., Chicago, Ill.
- Tree Holders.**
 Allentown Hdw. Works, Allentown, Pa.
- Trucks, Manufacturers of.**
 Clark, G. P., Windsor Locks, Conn.
- Tubes, Seamless Drawn Copper.**
 Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
 Randolph & Clowes, Waterbury, Conn.
- Tubes, Steel.**
 Avery Stamping Co., Cleveland, O.
 Leng's, John S. Son & Co., 4 Fletcher St., New York.
 U. S. Projectile Co., Brooklyn, N. Y.
- Tumbling Barrels.**
 Henderson Bros., Waterbury, Conn.
- Turnbuckles.**
 Cleveland City Forge & Iron Co., Cleveland, O.
 Merrill Bros., Brooklyn, E. D.
- Twist Drills, Makers of.**
 Cleveland Twist Drill Co., Cleveland, O.
 Morse Twist Drill & Machine Co., New Bedford, Mass.
 New Process Twist Drill Co., Taunton, Mass.
 Standard Tool Co., Cleveland.
- Valves, Gas, Water and Steam.**
 Chapman Valve Mfg. Co., Boston.
 Bynon-Evans Mfg. Co., Philadelphia, Pa.
 Jenkins Bros., 71 John, N. Y.
 Lunkenheimer Co., Cincinnati, O.
 McNab & Harlin Mfg. Co., 56 John, N. Y.
- Ventilator Appliances.**
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- Vise Jaws.**
 Newark Mch. Tool Co., Newark, N. J.
- Vises.**
 Hollands Mfg. Co., Erie, Pa.
 Howard Iron Works, Buffalo, N. Y.
 Millers Falls Co., 93 Reade St., N. Y.
 Parker, Chas. Co., Meriden, Conn.
 Prentiss Vise Co., 44 Barclay, N. Y.
- Wagon Jacks.**
 Covert Mfg. Co., West Troy, N. Y.
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- Washers.**
 Haskell, Wm. H. Co., Pawtucket, R. I.
 Milton Mfg. Co., Milton, Pa.
 Newbury, Jay Herbert, Guilderland, N. Y.
 Sternbergh, J. H. & Son, Reading, Pa.
- Washing Machines.**
 Richmond Cedar Wks., Richmond, Va.
- Water Meters.**
 Worthington, Henry R., 86 & 88 Liberty St., N. Y.
- Water Wheels.**
 Poole, Robt. & Son Co., Baltimore, Md.
- Wheelbarrows.**
 Bryan Mfg. Co., Bryan, Ohio.
 Sidney Steel Scraper Co., Sidney, O.
 Whitington & Cooley Mfg. Co., Jackson, Mich.
- Window Cord, Makers of.**
 Samson Cordage Works, Boston, Mass.
- Wire, Manufacturers of.**
 Gaudier Steel Department of Cambria Iron Co., Johnstown, Pa.
 Miller & Van Winkle, Brooklyn, N. Y.
 New Castle Wire Nail Co., New Castle, Pa.
 New Haven Wire Mfg. Co., New Haven, Conn.
 Salem Wire Nail Co., Salem, O.
 Washburn & Moen Mfg. Co., Worcester, Vt.
 Wetherell Bros., 93 Liberty St., N. Y.
 Wolff, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
 Wright & Colton Wire Cloth Co., Worcester, Mass.
- Wire Cloth.**
 Barnum, E. T., Detroit, Mich.
 Clinton Wire Cloth Co., Clinton, Mass.
 Darby, Edward & Sons, Philadelphia.
 Estey, W. S., 65 Fulton, N. Y.
 Gilbert & Bennett Mfg. Co., 42 Cliff, N. Y.
 Howard & Morse, 45 Fulton, N. Y.
 Ludlow-Saylor Wire Co., St. Louis, Mo.
 N. J. Wire Cloth Co., Trenton, N. J.
 Scheeler & Sons, Buffalo, N. Y.
 Wickwire Bros., Cortland, N. Y.
 Wright & Colton Wire Cloth Co., Worcester, Mass.
 W. S. Tyler Wire Works Co., Cleve'd.
- Wire Cutters.**
 Higginum Hdw. Co., Higginum, Conn.
 King, J. M. & Co., Watertown, N. Y.
- Wire Dies.**
 McFarland, Wm., Trenton, N. J.
 Newton & Shipman, 83 John St., N. Y.
- Wire Fences, See Fencing, Iron and Wire.**
- Wire Goods, Manufacturers of.**
 Bromwell Brush & Wire Goods Co., Cincinnati, Ohio.
 Darby, Edward & Sons, Phila.
 Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
 Ludlow-Saylor Wire Co., St. Louis.
 Scheeler & Sons, Buffalo, N. Y.
 Wickwire Bros., Cortland, N. Y.
 Williams, C. T., Wire Novelty Co., Newark, N. J.
 Wire Goods Co., Worcester, Mass.
- Wire Machinery.**
 Am. Tool Wks., Cleveland, O.
 Manville, E. J. Mch. Co., Waterbury, Ct.
 Morgan Construction Co., Worcester, Mass.
 Waterbury Mch. Co., Waterbury, Conn.
- Wire Straightening and Cutting Machinery.**
 Adt, John & Son, New Haven, Conn.
- Wire Nails.**
 Bond Nail Co., Raynham, Mass.
 Indiana Wire Fence Co., Crawfordsville, Ind.
 Kilmer Mfg. Co., Newburg, N. Y.
 New Castle Wire Nail Co., New Castle, Pa.
 Phillips, Townsend & Co., Phila., Pa.
 Salem Wire Nail Co., Salem, O.
 Taunton Wire Nail Co., Taunton, Mass.
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- Wire Rods, Steel.**
 New Castle Wire Nail Co., New Castle, Pa.
 Washburn & Moen Mfg. Co., Worcester, Mass.
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 Wolff, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Wire Rope, Iron and Steel, Makers.**
 Broderick & Bascom Rope Co., St. Louis, Mo.
 California Wire Works, San Francisco.
 Hazard Mfg. Co., Wilkesbarre, Pa.
 A. Leschen & Sons Rope Co., St. Louis.
 Trenton Iron Co., Trenton, N. J.
 Washburn & Moen Mfg. Co., Worcester, Mass.
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- Wood-Working Machinery.**
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- Wringers.**
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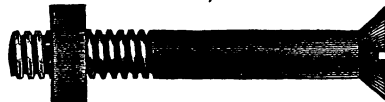
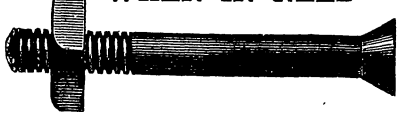
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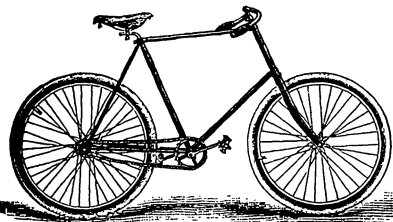
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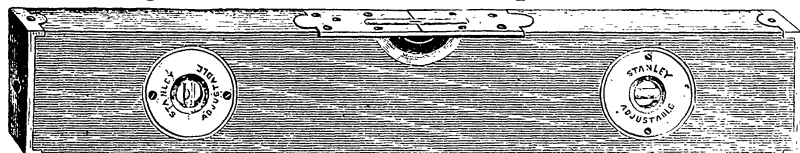
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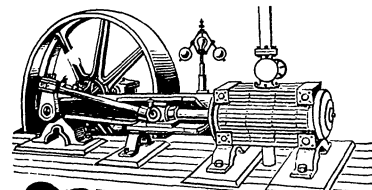


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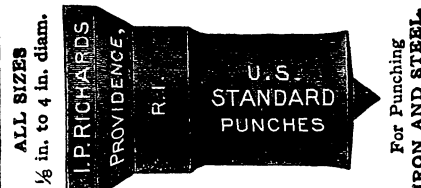
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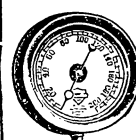
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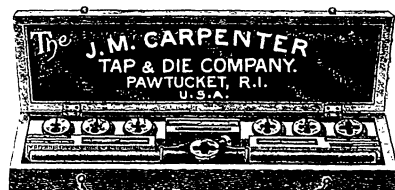
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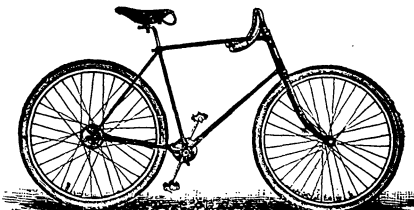
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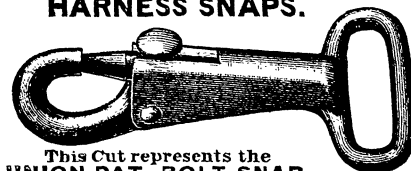
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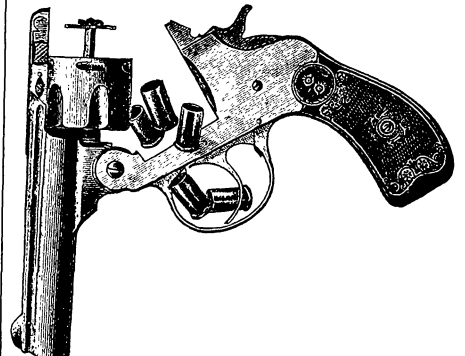
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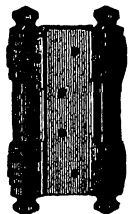
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THURSDAY, SEPTEMBER 27, 1894.

Waste in Coal Mining.

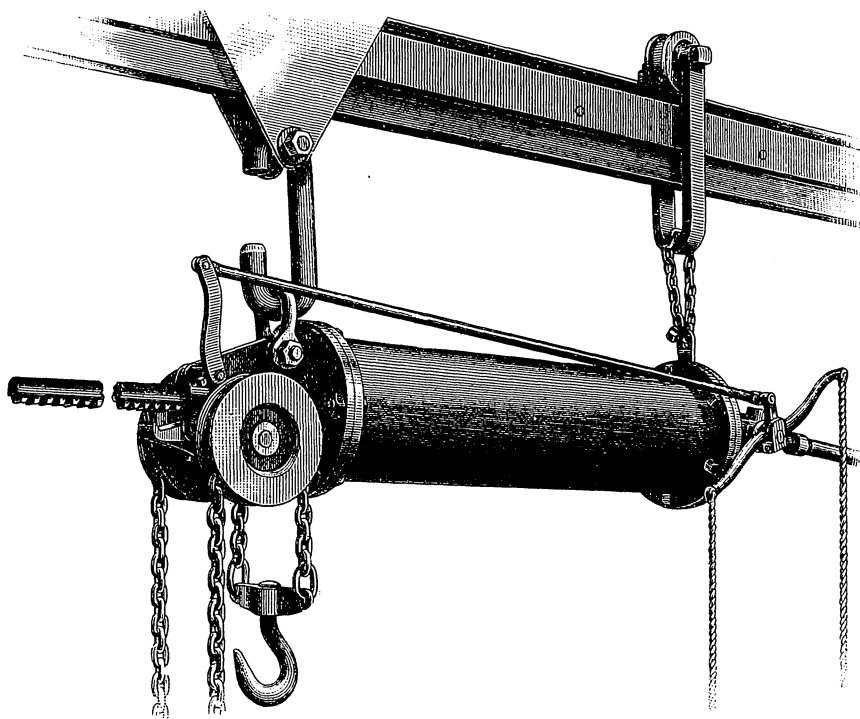
At a meeting of the Engineers' Society of Western Pennsylvania, in Pittsburgh, September 20, Selwyn M. Taylor read an interesting paper on "Waste of Coal in Mining" from which we extract the following: "The Pittsburgh coal seam," the paper says, "is probably the most valuable in the world, by reason of its extent and valued characteristics. It has an average thickness of from 12 to 14 feet, but of this only from 5 to 9 feet is commercially valuable, the remaining portion being so interspersed with strata of slate as to be worthless. Therefore the thickness of the coal, as the term is used, is from 5 to 9 feet. One-third of this is practi-

and in one mine alone that has been operated by machine mining a great many years 100 acres of coal have been lost in this way."

The paper closes as follows: "Let us summarize the production and waste in mining and shipping Pittsburgh coal on a basis of a 4 foot 6 inch vein, which prevails within a radius of 30 miles of Pittsburgh, and comprises about 80 per cent. of coal that is shipped as raw coal, though the production is larger per acre in the thick veins and Connellsville region, where it is not shipped as raw coal. Assuming the specific gravity of our bituminous coal at 1.4, the actual weight of 1 acre of coal 4 feet 6 inches thick would be 76,570 tons. The best results I have ever obtained from a considerable area of coal,

Pneumatic Hoisting Apparatus.

Howard A. Pedrick has designed a pneumatic hoisting apparatus, which is built by the Pedrick & Ayer Company of Tenth and Hamilton streets, Philadelphia. It is so planned as to occupy the least possible vertical space, in order to provide for the maximum amount of lift which the height of the roof or ceiling will permit. Provision is made for the rigid locking of the hoisting mechanism, so as to maintain the load in any desired position for any length of time, without, however, interfering with the raising or lowering of the load from the position of rest. A single lever serves for the operation of the hoist, for raising or lowering, and also for locking and un-



PNEUMATIC HOISTING APPARATUS.

cally lost in mining when machines are used, because it is apparently not possible to mine our coal on any other system than that of 'room and pillar.' The pillars should be withdrawn at once on the completion of the work. In machine mining after the room has been driven to its destination, there is a tendency to temporarily abandon the rib instead of starting in at once by hand mining, as should be done, simply because hand mining is a little more expensive, and the matter is put off until some time when there will be more profit in coal. This time never comes, and a room once temporarily abandoned is very apt to be permanently so, as in a few years falls and breaks will make it absolutely impossible to recover abandoned ribs. These ribs, amounting to one-third of the coal, which with its development in the way of track laying, entry driving, drainage and hauling probably standing on the books of the operator at from \$600 to \$1000 per acre, is permanently lost,

the average per acre, is as follows: 4650 tons of 1½-inch lump coal, 1425 tons of nut coal, 1425 tons of slack coal; total, 7500 tons per acre. And I would place the average production per acre of Pittsburgh coal at 4226 tons of 1½-inch lump coal, 1137 tons of nut coal, 1137 tons of slack coal; total, 6500 tons per acre, being an average loss of 1000 tons per acre, which is worth under the tippie an average price as run of mine coal of \$800 per acre, or more than four times the average first cost of an acre of coal."

Experiments are to be made by the Army Ordnance Department with smokeless powder in the 8-inch, 10-inch and 12 inch guns. General Flagler recently called for proposals to furnish smokeless powders for this purpose, and bids in response have been forwarded by the Leonard, the Maxim, the Peyton and the Dupont manufacturing firms.

locking. Each cylinder head is provided with a link, *a*, Fig. 2, so that it can be hung to the ceiling in such a way as to occupy the least possible amount of vertical space. In the cylinder is the piston *B*, secured to the piston rod *B*¹, which has formed on its under side a rack, *b*, engaging with a pinion, *b*¹, upon the hoisting spindle *D*, the latter turning in roller bearings formed in a box, *B*², projecting from the front head and in a cap applied to the under side of the box. Each end of the hoisting spindle has secured to it a chain wheel to receive the hoisting chain *F*¹, the loop of this chain depending on one side of the hoisting wheels and the ends of the chain depending on the other side, and being connected to the yoke of the hoisting hook *F*², so that the outward movement of the piston will cause the shaft *D* and its chain wheels to turn forward and raise the hoisting hook, while the inward movement of the piston will lower the hook.

Compressed air is admitted to the rear

end of the cylinder through a pipe and is controlled by a two-way valve placed in the valve chest G. On the stem of the valve is the lever H, to the arms of which ropes are attached so that it may be operated from the floor, in order to raise or lower the load, or to hold it at any desired height. To lock the load positively in any position, there is employed a detent, g, hung to the box B², and held in engagement with the rack on the under side of the piston rod by a spring. The automatic disengagement of this detent is accomplished by means of the trip arm h, which is hung to the shaft i, and which is connected by the rod i² to one arm of the valve operating lever. The trip arm h is adapted to act upon a projecting portion of the detent when the trip arm is lowered, the detent being thus depressed and the piston rod released, this operation taking place upon such movement of the valve operating lever H as will permit of the escape of the air from the rear end of the cylinder.

Specifications for Material for Pumping Engines.

The city of Chicago is calling for bids for fire pumping engines. The following specifications for the material to be used in this machinery are of interest as an illustration of what is called for in this class of work:

Iron castings for beds and frames shall be of tough, gray iron, free from cold shuts or other injurious defects, true to form and thickness, and of workmanlike finish. Sample pieces of 1 inch square cast from the same heat of metal in sand molds shall be capable of sustaining on a clear span of 4 feet 6 inches a central load of 500 pounds when tested in the rough bar. A blow from a hammer shall produce an indentation on a rectangular edge of the casting without flaking the metal. In addition to the above tests, iron for cylinders, valves and other important parts shall stand a tensile strain of 24,000 pounds per square inch, and shall show in fracture a clean, close gray iron.

Steel castings shall be free from blow holes, true to pattern, have a smooth and workmanlike finish, and must be properly annealed. Sample bars cast from each melt, after being properly prepared, shall be tested and must show an ultimate strength of at least 57,000 pounds per square inch, elastic limit of at least 30,000 pounds per square inch, elongation of at least 25 per cent. in 8 inches, and reduction at point of fracture of at least 25 per cent. Bronze or brass is to be made of new material and must be free from flaws, blow holes and mechanical imperfections and must conform to dimensions shown on the approved drawings. Sample bars cast from same heat shall be broken to ascertain the uniformity of the grain of the metal. When the castings are being machined, if the metal shows signs of imperfect mixing, the copper or other component parts being separated, it will be rejected.

All wrought iron must be tough, ductile, fibrous and of uniform quality; well welded, smooth and free from cinder pockets or injurious flaws, buckles, blisters or cracks. All wrought iron intended as rods, bolts, clamps, keys or similar parts shall have an ultimate strength of not less than 50,000 pounds per square inch, elastic limit of not less than 30,000 pounds per square inch, and elongation of at least 20 per cent. in 8 inches. All fractures

must show fibrous structure, and the iron must be capable of being bent to 180° about a curve whose diameter is equal to the thickness of the piece tested.

Dimensions and forms of forgings must be strictly in accordance with approved drawings, and they must be thoroughly welded and free from all mechanical defects. If iron forgings are made from "scrap," it must be strictly No. 1 and well tumbled to remove all dust before piling. If made from "new iron," the muck bar must have received at least one thorough reworking before piling. The manner of working the above material and the size of hammers used in making the forgings must be approved by the City Engineer, or his representative. If steel forgings are used, the clauses in relation to the size of the hammers and method of working shall apply as above. The steel shall not contain over 0.05 per cent. phosphorus, or 0.03 per cent. sulphur. If phosphorus is up to the

City Engineer may appoint, and the contractor shall provide and prepare, under his directions, such samples from each plate as is necessary to determine its quality, and the contractor shall also give the inspector all requisite assistance without extra cost. The city also reserves the right to make chemical tests of the material, and if this shows more than 0.04 per cent. of phosphorus, or more than 0.03 per cent. sulphur, the plates will be rejected. Each sheet used in the construction of the boilers shall have the maker's name and the inspector's stamp on the outside.

Do Iron and Steel Crystallize in Service?

BY PAUL KREUZPOINTNER, ALTOONA.

In the writer's article on the above subject printed in *The Iron Age* July 5 mention was made of the liability of

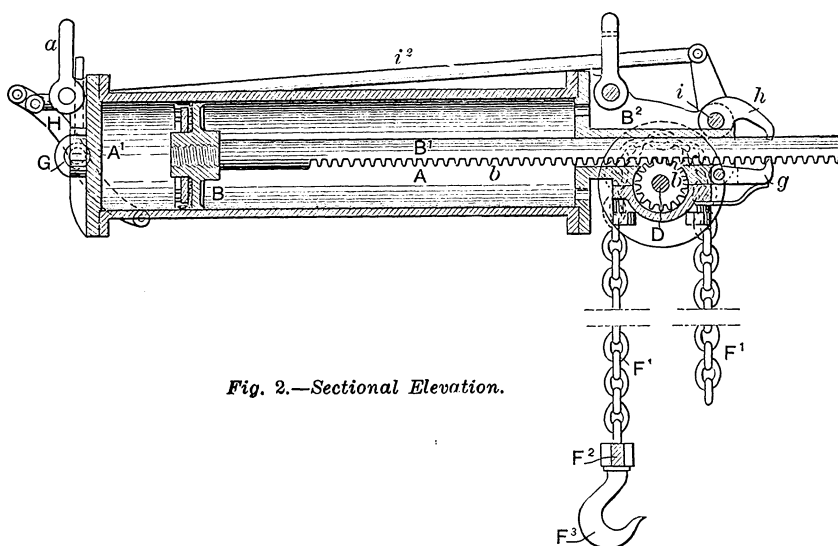


Fig. 2.—Sectional Elevation.

PNEUMATIC HOISTING APPARATUS.

limit given, the carbon shall not exceed 0.22 per cent., but if phosphorus is reduced so as not to exceed 0.035 per cent., the carbon may be increased not to exceed 10 points. The City Engineer, or his representative, shall have authority to pass upon the size of ingots, blooms or billets from which the forgings shall be made.

The shells, domes, heads and drums of boilers shall be constructed of homogeneous steel made by the acid open hearth process, and shall have the following properties and be of good finish and of uniform quality. The ultimate tensile strength shall not be less than 55,000 nor more 62,000 pounds per square inch. The elastic limit shall not be less than 32,000 pounds per square inch, with an elongation in 8 inches of not less than 25 per cent.; the test sections shall have planed or milled edges, with a cross sectional area of not less than $\frac{1}{4}$ square inch. All steel must stand hot or cold bending double and hammering down on itself without showing signs of distress, and must be capable of withstanding the usual punching and drifting tests. When a sample is broken after being nicked, the appearance of laminations or cold shuts or other imperfections will cause the rejection of the plates. All tests shall be made at the steel mills by such inspectors as the

the best soft iron to break with a crystalline fracture under certain conditions, thus creating the impression in the minds of the uninitiated that the iron had turned crystalline from its original fibrous state. It may be remarked here that the term "crystalline fracture" is very often applied without warrant of facts. A fracture is crystalline only when the shining particles which we observe are duly formed with more or less well developed angular bodies, bearing the characteristics of crystallization. But there are many fractures of iron and steel which present shiny facets, it is true, but are nothing else than the transverse section of the fiber of the material, or crushed original crystal, which formed while the fluid or semi-fluid mass of the metal was slowly cooling and was subsequently rolled out or hammered down and elongated according to the amount of work put on it. Now these crushed and more or less elongated crystals cannot be properly called crystals any longer, and hence the fracture of rolled and hammered iron and steel exhibiting the transverse section of these crushed crystals in the form of a shiny angular surface is more properly termed granular. But to many who are not familiar with these characteristics a granular fracture is crystalline in appearance, because of the similarity, and

they jump at the conclusion that the iron or steel crystallized in service. With them this opinion assumes the form of a conviction because of the occasional appearance of a really crystalline fracture or of a nest of crystals.

The latter may be due to insufficient work which did not break up the crystals in the bloom or ingot, or the crystals were formed in the overheated shaft or axle, &c., which was left to cool slowly, after being finished with strokes of the hammer so light that they did not penetrate to the center.

Many an erroneous conclusion would be eliminated from daily practice if due discrimination were always made in the case of so-called crystalline fractures of what is granular and really crystalline. It is not venturing on uncertain and speculative ground to assume without much fear of contradiction that on proper investigation by a competent person really crystalline fractures would be found never to have been fibrous in the first place.

The writer ventures to say that 19 out of 20 of all the so-called crystalline fractures are counterfeits and ought to be classed as granular.

Now, then, what are the conditions which produce this granular fracture? Let us fix the fact in our minds that the destruction of any metal, in our case iron and steel, must have a beginning. This beginning must necessarily manifest itself by a change in the position or form, or both, of the particles composing the metal. This change of position or form is ordinarily caused by an extraneous force pulling, pushing, squeezing, twisting or bending the metal.

The strains thus operating set the particles in motion, the extent depending on the degree and nature of the force producing the strains. The motion of the particles thus set up we call the flow of the metal. The softer a metal the easier will it flow under a given strain.

Now let us bear in mind that wrought iron and structural steel flow comparatively easily. But we have already seen that flow must begin with a change in the form and position of the particles of the metal. However, it is evident that with the first change of form or position of a particle it has become something different from what it was; it has become more or less distorted. Consequently, if we can in any manner break iron or steel before flow begins then we will obtain a transverse view of the particles of the metal as they existed when broken. Thus we can break even the softest stay bolt iron with a granular fracture if we can break it transversely before flow begins. The essential requirement to accomplish this is that one part of the metal be rigidly and immovably fixed around the periphery of the metal so that the force breaking the metal must spend more time to set the particles in motion and cause them to flow than it takes to break the metal through. The softer the metal the tighter and more rigid must be the grip on the portion held firmly and the quicker the action of the breaking force.

Nicking, flaws, coarse texture and other circumstances facilitate the result. Stay bolt iron is thus very frequently broken granular in boiler shops after the bolt is screwed home. The writer once saw the roof sheet of a stationary boiler which had blown off. Every stay bolt showed a beautiful granular fracture. There was a universal condemnation of the builder for putting in steel or cold short iron, while others were handy

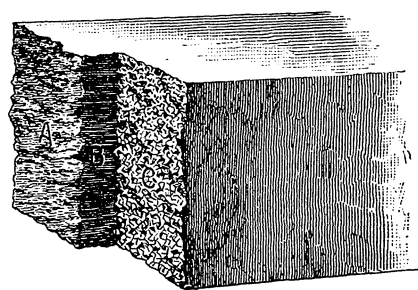
with their crystallization theory. But neither was right, the iron proved of excellent quality, pieces of the stay bolts could be bent double and closed upon each other under the steam hammer with one stroke without showing the least crack in the thread. In short, the so-called crystalline fracture, which was very fine, indicating good quality of metal to the expert, was nothing else but the transverse section of the fine fibers, produced by the lightning like quickness of the explosion, which did not give time for the particles of the iron to flow before rupture took place. It is obvious that there occur in every day life and practice innumerable combinations of circumstances which tend to produce various and modified results. But the underlying principle remains the same. That iron and steel become fatigued by shocks and variable strains is now recognized and has been pointed out by the writer several times in the columns of *The Iron Age*. That an axle, a shaft, or a beam is more liable to break when in such a weakened state is natural. Then it will break more easily transversely without flow, a granular fracture being the consequence. But the practice to anneal pieces of machinery at stated times to restore the fiber, as it is erroneously called, is proof in itself that in case of breakage with granular fracture the breaking of such articles was not due to the change of fiber to crystal, but to a state of the metal which is called fatigue, consisting probably in a beginning change of position of the molecules, in a disturbance of the cohesion. This disturbed condition is brought back to a normal condition by the annealing.

The annealing certainly cannot produce fibers in the metal if there were none before. It may be readily conceived that a member of a structure, though apparently designed large enough, is weakened by a nest of crystals. The good metal surrounding this nest has to carry a greater load, becomes fatigued there sooner than at any other place where the metal is good all through, breaks at that weak place, and the granular fracture commingling with the really crystalline portion is so deceptive in appearance that in conjunction with other apparently inexplicable factors the engineer is willing to swear by the beard of the prophet that the iron had turned crystalline in service. If we take a fracture of that kind, plane and polish a portion of it transversely and longitudinally, and examine it under the microscope, then a rational explanation of a supposed mystery is obtained.

If soft steel which under a nicking test shows amorphous fracture breaks granular in a mysterious way in a structural member or other article, then it is more likely that the heater in the mill had been laboring under the influence of a summer night's dream while at work than that a gentle fairy had turned the fibers, so called, of the steel into crystals. In such a case again the original dimensions may have been all right, but the overheating weakened the metal in certain portions, and fracture will naturally occur unexpectedly in those portions. The ability to judge by sight in such a case whether the metal had been overheated originally is worth more to the engineer than a cart-load of books treating on the crystallization of iron under shock and vibrations.

In the accompanying cut a form of granular fracture is illustrated, which is met with in almost innumerable variations, corresponding to the shape of the

material, the manner of breaking, the degree of intensity of strain, and the molecular condition of the metal at the point of fracture. Supposing the facets of the fracture to be comparatively large and bright, those lacking the experience of frequent comparison with similar fractures would conclude this to be a genuine case of crystallization due to shock and vibrations. But while A and C give the appearance of being crystalline, at B we see fibers. Why? Because there is no crystal anywhere near that fracture. A crystal is an angular body, varying in size, bounded on all sides by flat surfaces or facets. Consequently in a longitudinal fracture of iron and steel we have a right to see at B the angular surfaces of crystals if the fracture were truly crystalline, and not the stratified surface of bundles of fibers. Again, since crystals will not break through their bodies when torn apart, but separate along their respective sides, the crystals of iron, which are



comparatively large, if they are not crushed by rolling or hammering will stick their heads out boldly wherever they come to the surface, and these are seldom met with in rolled or hammered iron for reasons explained before. If they are met with it is due entirely to bad scrap being mixed with good iron, scrap which was burned before the good iron got to a good welding heat, or it is due to insufficient work which did not break up the original crystalline structure. It is found in every puddle ball and ingot, leaving the material with a more or less coarse texture, which, on breaking transversely, will have a close appearance to crystalline. Or the article was overheated before or after finishing, which would also tend to produce coarse texture and greater liability to fracture. Finally, the article, if a long piece like a shaft, axle or bridge member, was ignorantly heated on one end or in the middle. This would leave a blue heated portion or zone of metal somewhere along the line between the heated and unheated portions, with a consequent disturbed molecular state and internal strains at that point, a coarser texture and great liability to break transversely at that particular point without warning with the usual appearance of a granular fracture. The latter, owing to surrounding mysterious (?) circumstances, is taken for a case of recrystallization of fibrous material.

Saunders, Fielding & Bond, 108 Fulton street, New York, inform us that their tin plate works in Jersey City, N. J., will be closed. Their special brand of roofing plates—"Snow-drop"—will in future be imported from Wales.

A 40-ton electric locomotive has been built by the General Electric Company, at Lynn, Mass.

Press Working of Sheet Metals.—VII.

BY OBERLIN SMITH.

Drawing Process.

Sheet metal drawing proper consists in so confining a certain outer zone of a blank which is to be drawn into a cup-like shape between two rigid flat surfaces that the metal cannot wrinkle when pulled radially inward, which it attempts to do on account of the constantly decreasing circumference of its edge. In Fig. 88 is shown, in vertical axial section, a pair of combination push through drawing dies, such as are used for any plain cylindrical articles of medium depth, such as blacking boxes, can covers, clock cases, &c. They consist of a lower die, L, an upper die, U, and a drawing punch, P. They are shown with a cutting edge, *c*, for which reason they are termed "combination dies"—as a sheet laid between them when U descends is first cut into a blank, as shown in two views in Fig. 89. They could, however, just as well be used for blanks already cut, the edge *c'* being in such case somewhat rounded off to facilitate easy entrance of the blank, and remaining to serve the purpose of a gauge merely. Where blanks rather than whole sheets are used, this gauge ring may be omitted and gauge pins substituted therefor, as in Fig. 97, at G G. In some kinds of work no gauges are used except the fingers, the top surface of the die being made of exactly the same size as the blank, to facilitate adjusting in this way.

The operation of these tools is as follows: The die U descends until the blank is firmly clamped between it and the die L, at which time U stops, the ram of press being provided with a proper dwell until the punch U has had time to descend, forming the work gradually to shape, as shown by its successive stages in Figs. 90, 91 and 92. The punch then ascends, the work being prevented from rising by the sharp, hard stripping edge *s*. The slight expansion of the top edge of the work by its own elasticity is usually sufficient to prevent its pulling up through the die again. In some cases, however, there is a tendency to do so, which can be prevented by three or more spring pawls inserted in the die at a point below *s*.

In all work of this kind it is important to vent the punch by an air hole of ample size, somewhat as shown in Fig. 98, as otherwise there is a tendency for the work to be drawn upward by suction. This vent has been omitted from the other engravings.

It is evident that if the die U remains stationary during the drawing of the work, the thickness of the flange thereof—that is to say, the flat part from the edge inward, which would be the rim of the inverted straw hat, so to speak, represented by Fig. 90—must remain of the same thickness as the original blank; and therefore the sides of the finished cup, Fig. 92, as well as its bottom, will remain of uniform thickness—that is, if there happens to be sufficient room between the sides of punch and die, so that the metal is not squeezed thinner. It may be said that the die U might be easily forced upward by the attempted thickening of the metal, the press springing open to allow for the same. This is true, but in practice the fact is that the thickness is changed but little. We have, there-

fore, in this process an interesting action taking place in the flange, viz., the throwing together—in blacksmith's parlance the "upsetting"—of the metal in a circumferential direction, while a pulling apart or stretching action is going on in a radial direction, and that to an amount, as experience proves, just about sufficient to balance it.

This action is very prettily shown by a graphic method. Four small dots arranged in a square are marked upon the blank, as in Fig. 89, and this square will be seen to have elongated

titled "Flow of Metals in the Drawing Process," which was published in the journal of the institute for November, 1886.

In Fig. 93 is shown a pair of conical drawing dies, the blank and successive stages of the work being shown respectively in Figs. 94, 95 and 96. Large sized dies of this kind are usually made of cast iron, without cutting edges, the gauging being done by hand as before mentioned. Where there is considerable taper to the work, it is removed by the hand of

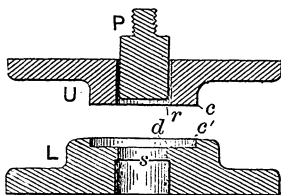


Fig. 88.

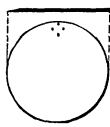


Fig. 89.



Fig. 90.

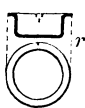


Fig. 91.

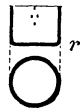


Fig. 92.

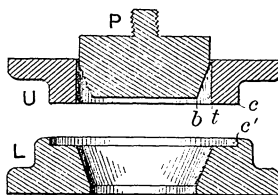


Fig. 93.

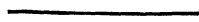


Fig. 94.



Fig. 95.



Fig. 96.

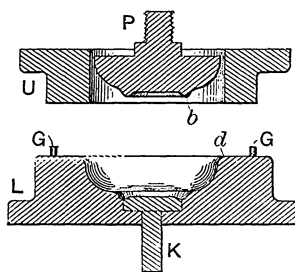


Fig. 97.

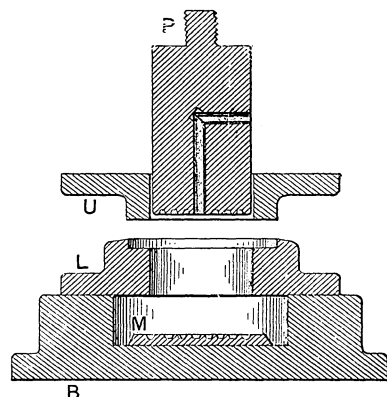


Fig. 98.



Fig. 99.



Fig. 100.

PRESS WORKING OF SHEET METALS.

itself radially and shortened itself circumferentially into the form of a diamond during different stages of the work, becoming a very elongated one at the last, Fig. 92.

There is evidently here an interesting instance of the cold flow of metals, the molecules thereof being obliged to move freely among themselves and arrange themselves in new positions. Such flow takes place, as experience proves, without weakening the metal, it merely growing somewhat harder in the same way as it would in any hammering or rolling operations. This subject has been previously treated by the writer in a lecture delivered by him before the Franklin Institute, en-

the operator grasping it inside and lifting it merely by friction as he pulls it upward and sidewise. The presses for doing this are run very slowly, with continuous strokes, not stopping by the clutch with the ram in up position, as is usual with smaller presses. This is, of course, somewhat dangerous, as a man's arms would be crushed to a jelly were he to fail in keeping time with the motions of the press, even perhaps by the fraction of a second. It is rarely, however, that accidents of this sort happen.

In Fig. 97 is shown a somewhat similar pair of dies, except that they are provided with a knockout, K, which rises at the proper time by a spring, or

automatically by the motion of the press. Such knockouts are of course used in dies of either of the forms described and they are sometimes omitted in bowl shaped work made in the dies now under discussion. The necessity of such a knockout is of course dependent upon whether the work is steep enough at any place to cause it to stick fast and thus prevent a free delivery. In Figs. 101 and 102 are

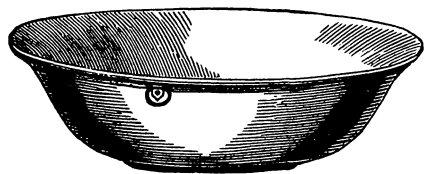


Fig. 101.



Fig. 102.

an extreme case. Brass, German silver and copper can usually be drawn somewhat deeper, while zinc, on account of its tensile weakness, has limitations of shallowness which are sometimes very provoking. Silver and gold are well adapted for deep work, but I cannot learn of the latter metal having been tried for anything as large as a churn. Recent experiments in the drawing of aluminum show it to be well adapted to



Fig. 103.



Fig. 105.



Fig. 106.



Fig. 107.

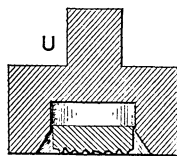
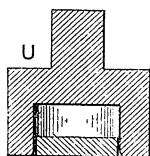


Fig. 108.

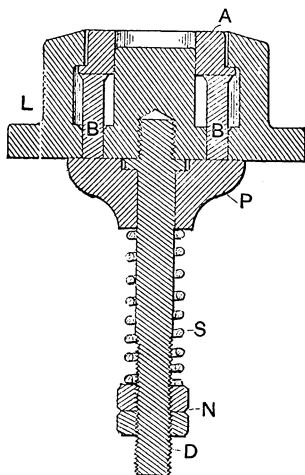


Fig. 104.

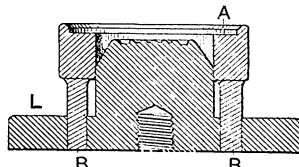


Fig. 109.



Fig. 110.



Fig. 111.

PRESS WORKING OF SHEET METALS.

shown perspective views of a bowl and cup made in dies of this sort.

Depth of Drawing.

The depth of work attainable by the drawing process depends upon various conditions, among which are the kind and toughness of metal, the thickness thereof in proportion to the diameter, the smoothness of the dies, &c. I have known small articles to be drawn at one operation from a good quality of one cross tin plate, which is about $\frac{1}{8}$ inch thick, to a depth equal to one-half their diameter. Occasionally this proportion has reached two-thirds, as for instance a 3-inch round box 2 inches deep, &c.; but such would be

the process. It is especially convenient on account of working without so frequent annealing as is necessary with brass, iron and steel, &c. Its tensile strength, however, being somewhat less than brass, prevents so great a depth being obtained at one operation. In some experiments conducted by the writer in drawing cartridge shells of this metal, it showed itself most excellently adapted to the purpose, as it is also to all sorts of cooking utensils, which are drawn without difficulty in the ordinary forms. These, on account of their healthfulness, lightness and beauty, are, I think, destined to undergo an enormous development.

Multiple Drawing.

It is evident that the resistance to be overcome in this process is due to both surface friction and molecular friction, or resistance to flow. With such conical articles as bowls, pans, &c., which do not require to be absolutely of uniform size, advantage is taken of this division of friction by drawing two or more together—sometimes as many as four. In such a case the surface friction is no greater for four than for one, as there are but two surfaces sliding against the dies. The molecular friction is, of course, four times as great as with one, but the sum of these frictions is obviously less than with one in proportion to the tensile strength of the work around the punch, which is as the number of thicknesses involved. There is, therefore, a considerable gain in strength, and deeper work may be made than where one is drawn at a time.

It is customary to remove the several thicknesses together from the press, sometimes spinning them in this condition, after which they easily drop apart. Obviously this could not well be done with cylindrical articles, as the difference in diameter would be too apparent, and, moreover, they could not be easily separated.

Referring again to the condition of the dies, it is very necessary, in order to avoid surface friction, that they be made exceedingly smooth and that the flat surfaces should be truly parallel, thus giving a space of uniform thickness between them. It is better to polish the clamping surfaces radially, rather than to leave a lathe polish upon them—a quite perceptible difference in preventing the metal from cracking sometimes appearing under such conditions.

Lubrication, which in certain cases is needed with various other kinds of dies referred to in this treatise, is always necessary to a more or less degree in drawn work. Sometimes oil is the best material—either applied occasionally to the dies or smeared in a thin coat over the sheets or blanks, or some of them. Soap suds works well for brass, and there are a variety of special preparations in the market. Zinc draws better if warmed as well as lubricated.

In Fig. 98 are shown a pair of triple action dies, and in Figs. 99 and 100 a blank and a finished box lid made therein. The action of these is the same as in Fig. 88, except that the punch has relatively a longer stroke and carries the work down on to the embossing matrix M, which is fastened at the bottom of a special bolster, B, made with an opening at the back through which the work is removed, instead of dropping downward in the ordinary way. The object of this is to emboss panels, beads, lettering or other devices upon the bottom of the work, and yet not be obliged to knock it up through the die, which is difficult with cylindrical shaped articles. The removal spoken of is usually performed by gravity, the press being set in an inclined position, so that the work may freely slide out. Sometimes, however, an automatic push out is provided. This is safer, as gravity sometimes fails to do its duty at a critical moment. Presses built especially for such work usually have a shorter ram stroke than usual, as room is not required between the dies for knockout work, and a relatively longer plunger stroke is needed, so that the die L may be made unusually thick (to give it strength where it bridges across the open space in bolster), and yet that the punch may

descend far enough to reach through it and downward to M. The punch itself is of course unusually long.

It is evident that other shapes (looked at in top view) than round may be treated by the drawing process. In Fig. 103 is shown a rectangular sardine box, whose sides are straight and corners rounded to about $\frac{1}{4}$ inch radius. This is quite difficult to draw, because the action upon the metal at the corners is approximately the same as in drawing a cylindrical box with the same radius, or $1\frac{1}{2}$ inches in diameter, which is very small considering the depth attained. There is in such case a violent flow of metal, modified somewhat as it extends outward from a rounded corner into the two adjacent straight sides. The shape of the blank for work of this kind is rather peculiar, the corners being very much cut away in comparison with the sides to allow for the great radial stretch of metal at those points. The turning up of the sides along near the middle thereof is obviously a bending action merely.

In Fig. 104 is shown a pair of combination spring drawing dies, so called, with the blank they cut shown in Fig. 105, and other stages of the work shown in Figs. 106 and 107. In Fig. 108 is shown a pair of similar dies arranged to work from a pre-cut blank, Fig. 109, and not supplied with cutting edges. The work is shown part way drawn in Fig. 110, and completed in Fig. 111.

Such dies are used in single action presses, the flange pressure being supplied by the drawing ring A, which is driven up and against die U by a powerful spring, S, working against a sliding plate, P, through the medium of a series of pins, B B. The stem D, together with its plate, P, nuts, N, spring, S, &c., form a portable device sometimes known as a "spring drawer," which can be screwed into any die adapted for it. Work done in this way is generally limited in depth to about 1 inch, as the pressure with anything much deeper would be so enormous as to waste a great deal of power, the descending ram having, of course, to compress the spring to the same number of pounds as are afterward given out by it upon its ascent.

Blank Dimensions.

[This subject was fully discussed by the author in the Franklin Institute lecture above referred to, and three methods were given for obtaining the blank dimensions.]

Holding Pressure.

But few available data exist, or at any rate have been made public, regarding pressure per square inch necessary for holding the various kinds of metal between the surfaces of drawing dies. Neither do any proper testing instruments exist which will fill all the conditions present. These must be originated, and it is certainly very desirable that somebody should make a systematic series of experiments in connection with this matter, as well as in relation to the pressures in general that are used in sheet and bar metal work. Such experiments, if properly performed, are tedious and expensive, but the writer hopes at some future time to be able to publish something definite upon the subject. Some fragmentary experiments which he made a few years ago show about 200 pounds per square inch for holding the flange of a small milk pan, over 300 pounds upon a blacking box in one case and nearly 500 pounds in another. One such box, with less than $1\frac{1}{4}$ square inches of drawing surface,

stood over 4000 pounds without the bottom being punched out, showing that in such shallow work there is often a great excess of flange strength. In general, for small tin plate work the pressure will probably run between 200 and 400 pounds.

The greatest possible plunger pressure that can be used in any given case without breakage is, of course, measurable by the tensile strength of the cross section of the work at the smallest diameter of the punch. This strength is obviously found by multiplying the circumference of the work at that point by the thickness of the metal and by its ultimate tensile strength per square inch.

In regard to the maximum limit of punch speed in drawing, we have again but few reliable data. The number of strokes per minute of drawing presses in commercial use vary from 10 to 200, with perhaps a rough general average of 50 or 60 per minute. At these rates the various metals used seem to flow properly without tearing fracture, although it may be that in some cases a slower speed would produce better results. Here, again, some systematic experiments are very desirable.

The Berry-Secaucus Case.

The Circuit Court in Jersey City, N. J., was occupied for portions of two weeks with a suit, the details and outcome of which are of interest to those connected with the manufacture of iron. Suit was brought by John W. Griggs of Paterson, N. J., attorney on behalf of the Secaucus Iron Company, for damages amounting to some \$7000, claimed to have resulted from the purchase and use of fire brick for lining up the bosh of the Secaucus Furnace, which was practically destroyed within four days. The damage claimed was for a new hearth and bosh, including brick, masonry, &c.; the filling of the furnace and all expenses connected with the maintenance of the plant during the time that it was out of blast. The defendants, William H. Berry & Co. of Woodbridge, N. J., represented by J. R. Emery of Newark and Gilbert Collins of Jersey City, attorneys, disclaimed any failure on the part of the brick, and set up a counter claim for a balance of several hundred dollars due on the brick furnished. Expert testimony was supplied on the part of the defendants by John Birkinbine, Robert A. Cook, George C. Stone, and Dr. Gideon E. Moore, and on the part of the plaintiffs by John Hartman, John Sherrerd, I. P. Pardee, and Kenneth Robertson. The circumstances as set forth in the testimony were that the furnace was filled with Hodbarroa (English) ore; that some white iron, some No. 4 iron and some No. 3 iron had been made when, owing to a boil in the cast house, the furnace was stopped for five hours. When the blast was again put on flame and sparks came from the joints of the brick work of the bosh; that holes were cut into the brick work and attempts made to repair it, but that after several days of such irregular operation (a considerable portion of the brick work of the bosh having been destroyed), the furnace was shut down. The contention of the plaintiffs was that the brick was not of proper character for a blast furnace bosh; that this special lot had in some way failed to come up to the standard of Berry brick which had been supplied to the Secaucus company before. The

defendants met this claim with an elaborate series of chemical analyses and heat tests showing that pieces of the condemned brick taken out of the defective bosh and of brick made at the same time had been subjected, under exactly similar conditions, to tests with other fire brick, some of which had been used by the plaintiffs, all these tests made by competent experts showing the superiority both as to chemical and physical qualities of the Berry brick. The result of experiments on some samples clearly showed the destructive action of silicates of iron on fire brick. The plaintiffs' furnace record being in evidence, the defendants contended that from this record it was evident that the furnace operated irregularly; that it had a deficiency of lime, and that the brick, instead of being melted, were cut or fluxed away. Samples of brick were shown and the difference exhibited between those taken out of the furnace which had been partially destroyed or partially replaced by iron, and other samples which had been subjected to high temperature only. The defendants practically based a portion of their case upon James Gayley's paper, before the American Institute of Mining Engineers, upon the protection of blast furnace hearths, in which he emphasizes the importance of blowing in a furnace "hot and limey," and questioned whether any fire brick would last for one week in the hearth or bosh of a blast furnace unless protected by the carbonaceous lining which forms early in the campaign, or unless the bricks were kept at a low temperature by ample water cooling appliances. The court charged that although no specific guarantee accompanied the sale of brick, the order being for Berry's first quality fire brick for a blast furnace hearth and bosh, the defendants were bound to supply the best they made, "reasonably fitted" for the purpose for which they were known to be applied. That the responsibility of the defendants, however, did not extend beyond the brick, and that for the method of laying them and the specific sizes ordered the plaintiffs were responsible, this latter ruling being occasioned by a contention as to whether the use of 16 inch blocks or of 9-inch and 13-inch shapes were preferable. The court stated that the question of whether the furnace was so operated as to destroy the brick was to be determined by the jury from an analysis of the evidence submitted. The jury after sitting six days hearing the testimony, the arguments of counsel and the charge of the court, brought in, after a few hours' deliberation, a verdict in favor of the defendants for the amount of the balance due for brick furnished, thus acknowledging that in their belief the brick were not defective, but that they were destroyed by other influences than high temperatures. The case was closely contested and was replete with interesting features, one of which showed how much information an expert can obtain concerning the operations of a blast furnace from examination of its daily record. The thorough series of tests and experiments added valuable information to our present knowledge of the character of refractory material which is demanded by modern blast furnace practice, and to the influences which combine with high temperatures to destroy fire brick.

Hughes & Patterson, Incorporated, Philadelphia, have closed down their tin plate works indefinitely.

Profit Sharing in the English Iron Trade.

An interesting historical sketch on profit sharing forms a part of the report by D. F. Schloss of the Labor Department of the British Board of Trade. We select from it the following:

In the latter part of 1866 Fox, Head & Co. of Middlesborough, manufacturers of puddle bars and iron plates, introduced a system of profit sharing, which, after an experimental stage of three years, was adopted for a further period of five years on the following lines: After making an allowance for renewals and depreciation of works and plant at the maximum rate of 6 per cent. on the outlaid capital, and carrying 1½ per cent. of the gross revenue to a reserve fund, intended to cover bad debts, one-half of all profits over 10 per cent. on capital was to be given as bonus to the employees. It was provided that "should the year's profits not meet all the charges, including 10 per cent. profit to capital, the deficiency is to be charged to the profit and loss account of the following year." The partners took, in remuneration of their services as managers, salaries reckoned as part of the working expenses; and it was provided that the accounts should be submitted to public accountants, who should decide what was due to the men in respect of their bonus. It was made a condition of participation that the men should not belong to any trade union, the employers agreeing not to belong to any association of employers. The firm undertook to receive money on loan from their workpeople, either at 5 per cent. interest or at the same rate of interest as was earned by the capital of the partners; but only one workman invested money in this manner, and this offer was ultimately withdrawn. In the first two years there was no bonus to divide; in 1869 the bonus was at the rate of 2½ per cent. on wages; in 1870, 4 per cent.; in 1871, 3½ per cent.; in 1872, 3½ per cent. In 1873 there was no bonus; nor, apparently, in 1874. At the end of 1874 the period for which the scheme had been adopted came to an end, and the method of profit sharing was thereupon abandoned by the firm. Messrs. Fox, Head & Co. expressed the opinion that, at any rate during the first years, they derived advantage from their system of profit sharing, inasmuch as it awakened among the better class of workmen a feeling of *esprit de corps*, which enabled their employers to bid defiance to the threats and the attacks of the trade unions; but no other effects were attributed to the existence of the system. The reason given by Jeremiah Head, one of the principals, for the discontinuance of profit sharing in this firm was that their workmen, taken as a whole, did not appear to them to be sufficiently advanced in moral and intellectual culture to understand completely, and to practice conscientiously, the principle of co operation. It is, however, worthy of note that while the principal feature of Messrs. Fox, Head & Co.'s scheme of profit sharing had always been that its provisions expressly forbade the workmen to belong to a trade union, after the scheme had been for some years in force their puddlers (about one-third of the total number of their workmen) did join the trade union (losing, accordingly, their bonus for the year). It is possible that this fact may have induced Messrs. Fox, Head & Co. to entertain some doubt as to the efficiency in certain directions of the

system which they, like Messrs. Briggs, had probably hoped to see succeed in detaching their workmen altogether from trade union combinations.

A firm which is known to have introduced profit sharing in 1867 is that of John & Henry Gwynne, engineers, of Hammersmith Iron Works, who announced that they would divide among their employees a bonus equal to 10 per cent. of their profits on the machinery manufactured at their works, payable in cash, each sharing in proportion to his total earnings during the year, with a proviso that none but non-union men would be employed. The firm agreeing not to join any combination of masters. It was arranged that the accounts should be audited by an accountant selected by the firm, so much of his report as concerned the employees being communicated to them. John & Henry Gwynne state that they abandoned profit sharing after three years, because they did not find the system satisfactory.

In 1872, a year in which the engineering trade was in a very prosperous condition, J. Gimson, manufacturing engineer, of Leicester, issued a notice to his employees informing them that one-half of all surplus profits remaining after 10 per cent. on capital had been paid would in future be divided as bonus among those to be named in a list. This list was to contain the names of the managers and foremen and the greater number of the workmen; men found deserving were to be added from time to time. Mr. Gimson stated that he hoped the money to be given as bonus would be earned for the firm by the extra zeal evoked by participation in profits. There was instituted in connection with the profit sharing system a committee of employees, upon which devolved the duty of deciding who should be on the list of profit sharers. About 100 men on the average, out of a total of about 150, were on this list, but the non-inclusion of others gave rise to much friction. The rate of bonus for 1872-73 is not known exactly, but was about 7½ to 8 per cent. on the men's wages; for 1873-74 it was 8½ per cent.; for 1874-75, 6½ per cent.; for 1875-76, 7½ per cent.; for 1876-77, 5 per cent.; giving an average rate for the period 1872-73-1876-77 inclusive of about 7 per cent. on wages. The employers found that at first the men exhibited extra zeal, special carefulness, and greater economy; but that, as the novelty of the profit sharing arrangement wore off, this improvement ceased to be maintained. An incident which occurred in 1877 caused some disappointment to the firm. The men had, at a time when the firm were specially busy, had a holiday, involving the loss of two days' work. Being asked to work an hour overtime per day until this lost time was made up at the ordinary rate of pay, the men refused, demanding to be paid at the extra rate for overtime (25 per cent. above the ordinary rate) established by the trade union. The employers (as they state) thought that this action of the men showed that they considered themselves more bound to the union than to the business. However, it cannot be said that either this or any of the other circumstances above mentioned caused the discontinuance of the profit sharing system in the present case. It appears quite likely that the system would have been continued (J. Gimson, the senior partner, being anxious to give it a further trial), but for the fact that the profits for 1877-78, and also, it is believed, those for 1878-79, were not in excess of the minimum fixed by the scheme, so that no

bonus would in any case have been divisible, and after this "the whole matter quietly dropped."

William Jacks & Co., iron merchants of Glasgow, Middlesborough, London and Grangemouth, adopted in 1880 a system under which their employees participate in the profits. The business is divided into five departments. The heads of each department receive an agreed upon percentage of the profits. Then a certain percentage is set aside and divided among the subordinates, each receiving according to his ability, acquirements, and the interest he takes in his work; of these qualities the partners are the judges—7½ per cent. on the capital is allowed for interest on capital and partners' salary (*i. e.*, 7½ per cent. includes both these), which is deducted from the net profits before the above division is made. The bonus is paid in cash, but may be left with the firm at 5 per cent. From 30 to 40 persons are employed. In reply to an inquiry whether the adoption of profit sharing had proved satisfactory, the firm write: "When the firm does well, yes; and certainly it promotes a friendliness and harmony in the work. When the amount to be distributed is small there is naturally a certain amount of 'glumness' which does not exist where nothing is expected but the agreed upon salary."

The large engineering firm of Tangyes, Limited, at Birmingham, employing in October, 1883, about 1500 persons, introduced profit sharing at that date by giving some of their men bonds for £50 current for one year and issued annually, and entitling the holders, if continuously in the service of the firm during the year, to receive interest at the same rate per cent. per annum as the rate per cent. per annum declared by the company on their ordinary share capital for the year. If the holder of a bond died before the end of the year, his family became entitled to receive the principal sum secured thereby. After a time it was thought that these arrangements involved an undue degree of publicity in regard to the affairs of the firm, which is a private company, and it was decided that, as from July 1, 1889, the bonds should bear a fixed rate of interest (5 per cent.) Thus profit sharing was, after a few years' trial, abandoned.

In May, 1887, Ross & Duncan, engineers and boilermakers, of Whitefield Works, Govan, introduced a system of profit sharing, which is described in detail in a communication from the head of the firm printed in the *Report on the strikes and lockouts of 1888*. A bonus was distributed in October, 1887, and again in October, 1888; but at the end of the latter year the profit sharing was discontinued, because the workmen were found to take no interest in the matter, and, indeed, seemed to be looking upon it with suspicion as disguised selfishness attempting to establish a kind of a spy system of some men over others. However, after a lapse of one year, profit sharing was resumed. The foremen and officials receive sums, the amount of which varies with the profits, and according to skill and conduct, at the partners' discretion. To the workmen who have been in the service of the firm not less than 18 months there is allotted an amount depending on the profits after payment of salaries and partners' interest at 4½ per cent.; this amount being divided between the participants in proportion to their normal pay. Apprentices are not included, but receive rewards for good conduct. The question whether the bonus received by the

workmen shall be taken entirely in cash or credited, in whole or in part, to a provident fund (maintained by the employees, with an annual subvention from the firm) is decided each year by the vote of the majority of participants; the bonus (taking the distributions made in 1890-93 inclusive) has been at the average rate of 1.3 per cent. upon the normal wages of the participants. The number of persons employed by the firm varies; in October, 1893, it was about 220. In connection with the profit sharing scheme there exists a joint committee of masters and men which the senior partner has thus described: "An institution we find very useful is a monthly meeting of our partners, officials, foremen, delegates elected from each department of the works, and the officers of the benefit society (which manages the provident fund). At these meetings all matters of general interest in the conduct of the business, awards received at exhibitions, complaints from customers, delay in delivery, effects of tariffs on trade, improvements in methods, reserve funds, outlay on new appliances, extension of the business, proportion of apprentices to journeymen, training of apprentices, rewards for inventions, &c., are brought up for consideration and discussion. The interest and intelligence shown are often very gratifying." Ross & Duncan now write: "We are quite satisfied that our profit sharing attempts and our conferences with workmen have promoted a better and more harmonious spirit throughout our works. The feelings generally are very cordial, though we cannot profess to be free from little differences of opinion at various times. Where duties and payments are concerned we presume there will always be some difference of opinion."

In December, 1889, Lee & Hunt, engineers' machine tool makers, of Nottingham, introduced profit sharing; 6 per cent. is deducted for depreciation of plant, 5 per cent. is deducted for interest on plant, the net balance or profit is equally divided between the firm and employees, 50 in number, each sharing in proportion to the amount of wages earned by him. The bonus, which is paid in cash, has (taking the distributions made in 1891-93 inclusive) been equivalent to an addition to wages of 4.1 per cent. There is a profit sharing committee, which decides who shall share in profits, and has decided that none shall do so who leave the firm of their own accord during the year, and none who have not been in the employ of the firm three months. Lee & Hunt write: "We think the system has proved satisfactory. It has tended to promote harmony, and in the case of most of the men it has led to an exhibition of extra zeal."

Archibald Edmeston & Sons of Salford, engineers, adopted on January 1, 1890, a system of profit sharing under which one-fourth of the net profits, after the usual debits have been made for interest on capital employed and depreciation of plant, is distributed among their employees (now from 47 to 64 in number) in proportion to the wages each has earned during the year. It is provided that an interim distribution will be made, if feasible, as soon as possible after the half year ending June 30, the amount of this to be decided by the firm. In order to participate a new employee must have worked a probationary month, in respect of which he has no claim to bonus, and every profit sharer must be a member of the sick club. The bonus is paid in cash. Fines for loss of time are de-

ducted from the share of a participant, but in case of sickness power to remit the fine is vested in the profit sharing committee, a body of eight adult persons including a secretary, which is formed every January at a general meeting. But all fines and other balances of profit share amount are to be handed over to the sick club. The rules provide that any person leaving or being discharged for vicious practices, intemperate habits or willful carelessness will be dealt with according to the decision of the committee. The firm state: "We are of opinion that our system of profit sharing has, on the whole, been fairly successful. With regard to our relations with the workmen we may say that these have been amicable for some years and disputes rare. The men are also, we think, more attentive and careful, though we do not find that the ordinary precautions, efforts and rules needed to insure punctuality and diligence can be in any way relaxed."

In April, 1890, the Thames Iron Works Shipbuilding Company, Limited, a large firm at Blackwall, put forward a scheme of profit sharing. The company had recently had several disputes with their workmen, in particular with the trade union of the boiler makers and with that of the ship joiners. This induced A. F. Hills, the managing director, to "think that we ought to do something to stop it, and the first proposal that suggested itself to my mind was some scheme of profit sharing." The scheme was to the effect that, after a sum equal to 10 per cent. on the shares had been paid, the remaining profits should be divided equally between the shareholders and the employees, the amount available as bonus to be certified by the company's auditor, and to be placed in the hands of a committee (eight nominated by the company and eight elected by the workmen), and to be divided in proportion to wages earned among all who should have been at least six months in the company's service, the shares of workmen of less standing to form the basis of a provident fund to be administered by the committee. The bonus was to be paid in cash, but the recipients were to have the right to leave it on deposit at 5 per cent. The scheme met with considerable opposition; the general secretary of the Amalgamated Protection Union of Hammermen, Enginemen, Machinemen, Helpers and General Laborers issued a handbill urging men not to accept the scheme without the approval of their executive council. Generally, the influence of the trade unions was averse to the acceptance of the offer. After it had been discussed for three months the scheme was rejected by a large majority of votes.

In July, 1890, Browett, Lindley & Co., Limited, of Salford (now of Patricroft, near Manchester), a firm of engineers employing at that time 80 persons, introduced a scheme of profit sharing, under which their employees were to receive one-fourth of all profits in excess of a certain reserved limit. During the first six months the work of the men showed a decided improvement in character; but at the end of this period some misunderstanding arose. The employees had conceived the idea that it would be possible for their employers to ascertain at once, upon the expiration of the first six months, the profits realized in the past half year, and to immediately distribute a bonus, which the men, having exaggerated ideas of trade profits, imagined would be a very large sum; this, however, was impracticable. In consequence of this

misapprehension, disappointment was felt by the employees, and the extra zeal which the introduction of the profit sharing system was found to evoke in the first six months did not continue to be manifested. Before the expiration of the twelve months a small sum was given to each man in anticipation of any bonus to which, upon the ascertainment of the first year's profits, he might become entitled; but no declaration of bonus took place. Partly because the firm considered that their profit sharing scheme required to be altered in certain respects, partly because they were about to remove their works from Salford to Patricroft, an operation necessarily involving change in the *personnel*, and entailing a cost so large as to make it most unlikely that the profits of the ensuing year would admit of the payment of a bonus, the profit sharing scheme, after being in force for 12 months, was abandoned, and no steps have since been taken to reintroduce profit sharing. But Thomas Browett (director of the company) does not appear to have lost faith in the advantages to be derived from the method of profit sharing, for he writes: "I am still strongly of opinion that profit sharing is economically sound, and, in most instances, the proper thing to be adopted, particularly when the nature of the work or trade restrictions prohibit piece work, and I have no doubt that, where prosperity generally can be relied on in the business, all parties would be well pleased with the result. If any large loss during a year swamps profits, and no bonus is payable, the men, having exerted themselves to earn one, are at once discontented. It is new to their minds to work without a proportionate and certain reward. The element of risk, and the vicissitudes of an employer's life, are unknown to them. They are prepared to take anything, but to give nothing."

The British *United Service Gazette* states that experiments with a new form of torpedo net cutter are being carried out at the submarine mining station of Bramsnas, Denmark, under the direction of the Danish Minister of Marine. The "torpedo scissors," as the appliance is called, are the invention of a Danish naval officer. They are fixed at the head of the torpedo, and their action depends on its speed. Having effected a breach in the net the scissors fall aside and allow the torpedo to pass on and strike the ship's side. The experiments are stated to be so far successful, and the invention is regarded as hopeful.

The following statistics are given in the report of the condition of the British railroads, recently issued, for the year 1893: Three hundred miles of track constructed during the year make the total mileage for the United Kingdom 20,646, which represents an authorized capital of nearly \$5,000,000,000. There were carried 30,000,000 first-class passengers, 60,000,000 second-class and 782,000,000 third class, a total of 873,000,000 in all; 208,000,000 tons of minerals and 85,500,000 tons of general merchandise were transported a distance of 142,000,000 miles.

It is reported that the platinum mines of the Ural Mountains, which yield the bulk of the world's supply of the metal, are being worked to their full capacity, with orders two years ahead.

The Niagara Gutter Former and Bearer.

The gutter former and bearer just introduced by the Niagara Stamping & Tool Company of Buffalo, N. Y., is designed for both forming and beading the gutter at one operation. The machine is built with sufficient stiffness to prevent springing. It has a central frame supporting the bed and giving additional bearings for the shafts. The motion is controlled by a positive clutch mechanism, and the dies required for the work are attached to three sides, the two outside ones being connected. The machine is back geared one to three. The shaft with fly wheel and clutch makes six revolutions, while the shaft with eccentrics to operate the outside slides makes two, and

rod for the work. This is a convenient feature for the slip joints, and it results in a considerable saving of stock, since the hook on a 10-foot length of gutter requires 30 square inches of metal for single bead and 60 square inches for double bead. A bead can be made with this machine as small as $\frac{1}{4}$ inch diameter and up to 1 inch diameter. Provision is made to take the spring out of the material sufficiently to produce a trough of the standard width. The machine is constructed for 6-inch gutter and the smaller sizes. The working parts are so arranged that the exchange from one size to another can be performed rapidly and without trouble. In addition to a half round eave trough the machine can be provided with dies for so-called architectural gutter of various designs, with bead along the edge. Material as heavy as No. 24 gauge can be worked,

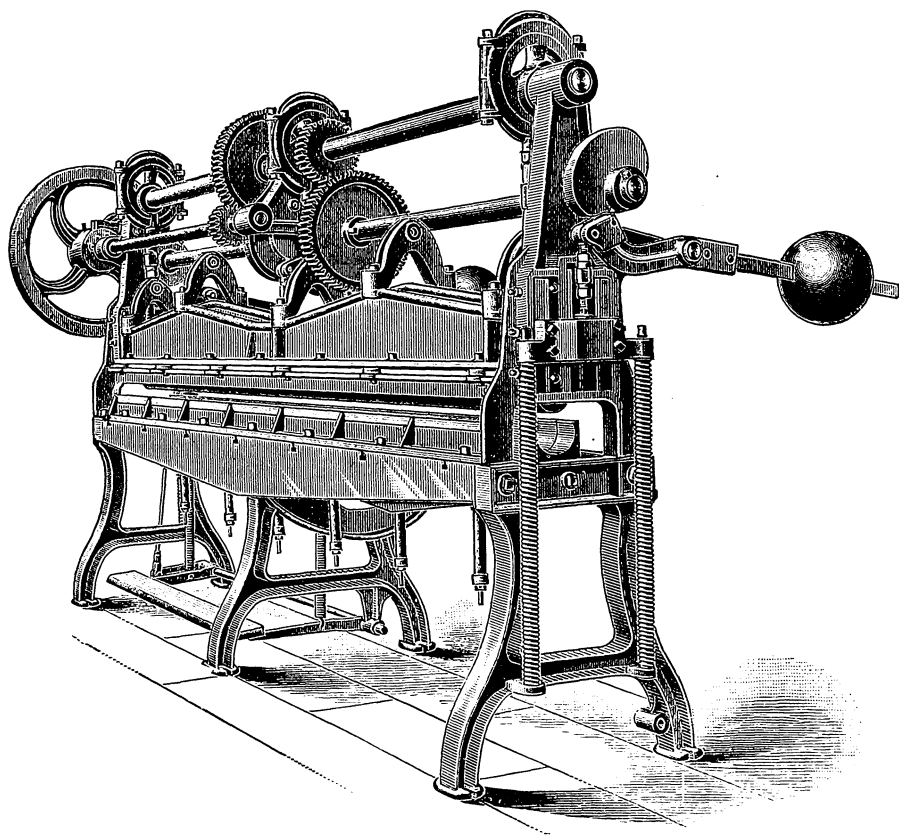
the brush, and from it to the weeds through which it was driven. Its touch killed the weeds, root and branch. The machine, after thorough trial, is said to have been pronounced a success. Attached to the car is a box car carrying a stationary engine and dynamo.

Canadian Notes.

The leading, almost sole, manufacturers of harvest machinery in this country are the Massey-Harris Company, and they threaten to leave us. They are dissatisfied with the tariff changes, which lowered the duty on their product from an ad valorem rate of 35 per cent. to one of 20 per cent. This loss of protection was not balanced by reductions in the raw material. The alterations in the iron schedule were more of the nature of a *modus vivendi* among the various classes of iron producers than an adjustment of raw material to product. Since the United States reduced the duty on coal and iron ore the company have been considering the advisability of transporting a part of their industry to the southern side of the border. There is some suspicion that their talk of leaving the country is for the purpose of influencing the Government to lighten the duty on pig iron, bar iron and steel. The company's business has grown to its present proportions under the genial operation of a high tariff. They now aim to do an export business, their works having attained a capacity far beyond the needs of this market. They do an export trade with Australia, and, it is said, with some South American countries, even now. They are allowed a rebate of duty paid upon imported material in their exported implements, but the rebate is given only in such material as could not be got in this country. This, of course, narrows claims for rebate to a small compass.

The Waterways Convention which met in Toronto last week to consider the feasibility of deepening the St. Lawrence Canals to 20 feet has not aroused much enthusiasm. It is taken for granted that the St. Lawrence route is the natural outlet for the produce of the Northwest on both sides of the boundary, but the difficulty of agreeing upon a plan of joint construction and control is recognized as a large one. It would be altogether out of the question for this country to think of adding to its burdens by going into debt another \$100,000,000 to open a deep waterway for the produce of 5,000,000 people. All the arguments of agitators are treated as academic.

American enterprise proposes to take hold of one of our natural resources in the extreme West, as American enterprise did of our coal fields in the extreme East. J. P. Witherow, from Pittsburgh, is negotiating with the Vancouver City Council to obtain a municipal guarantee of the interest on the bonds of a company he is organizing for the construction and operation of large steel works in that city. The capital of the company is to be \$3,000,000, to be raised in England. The grounds for the scheme are: Abundance of suitable ore in Vancouver Island; plenty of good coking coal near it; the Federal Government's bounty of \$2 a ton on pig iron and a similar one on steel; the lower duties on pig iron and steel in the United States, enabling British Columbian product to be shipped to the coast States against the long



THE NIAGARA GUTTER FORMER AND BEADER.

the shaft for the inside slide, which is operated by cams and carries the forming die, completes but one revolution.

The sheet, previously cut to the correct width, is put in its place lengthwise. A depression of the foot treadle engages the clutch and throws the machine in motion. First the two outside slides descend simultaneously to break the edge of the sheet, or both edges if an eave trough with double bead is being made, then the forming die acts, and while it remains at the lowest point the outside slides come down again to complete the bead or beads.

The time required to form and bead a 10-foot length of gutter with one or two beads is about two seconds. The formed gutter is loosened from the lower die by spring attachments and it can be removed without difficulty from either end. The work produced is perfectly straight and the beads are round and uniform the entire length. There is no tongue or hook in the bead, which is unavoidable when using a grooved

or on an extra heavy machine even as heavy as No. 20 gauge. The dies are arranged to accommodate a gutter with a slip joint at either end, right or left.

Weeding railway tracks by electricity has been tried on the Illinois Central Railroad after lime, steam, fire and gasoline burners had been tried with little success. The apparatus, devised by J. Wallace, Chief Engineer, and A. A. Sharp, Division Superintendent at Memphis, Tenn., consisted of an ordinary flat car, to which was attached a sort of circular brush suspended at right angles to the track and of sufficient length to extend over the ends of the ties. It was studded thickly with fine copper wire, which came into contact with the weeds and grass on the track as the car passed over the road, the brush being so constructed that it could be raised or lowered at will. This brush was attached to an electric generator by fine wire, through which a strong current of electricity passed to

drawn Eastern product; the large markets opening in Japan and Australia. The plant is to cost about \$2,000,000, the output is to be 50,000 tons of iron and steel a year, the guarantee to be 5 per cent. annual interest on \$1,000,000 bonds for 20 years and to be secured by bounties from Dominion and Province and a charge upon the assets of the company. Vancouver opinion is quite encouraging to the scheme.

The Hamilton Smelting Works are being pushed forward this fall. The expenditure so far is in the neighborhood of \$25,000, which is an earnest of their completion. The foundations of three hot blast stove ovens are completed, as is that of the hoisting power. As the work goes forward the question is asked, where will the ore come from? It is denied by a great many that it can be found within economical reach in that part of Ontario, and it is believed by these that the ore will come from the United States.

Manufacturers who use iron in any form continue to express dissatisfaction with the iron duties, as they say these duties were conceived, not so much in the interest of an industry as in that of a locality. The preponderance of numbers and ability that the Maritime Provinces have in the Cabinet are supposed to be the reason of this. At all events adverse critics say the iron schedule is a Maritime Province schedule. An Ontario manufacturer of stoves can either import his pig iron from across the line or bring it from Nova Scotia. If he imports it he pays a duty of \$4.40 a long ton. If he aims to do an export trade in the resultant stoves and ships any across the line he has to pay a duty again. He then appeals to the Government for the refund that is supposed to be allowed on exported product of imported material, but is told that he is not entitled to it, as there is no need to import the material; it is produced at home. The result of the new bounties on puddled bar and steel has so far been a marked increase in the finer grades of pig iron, but none in foundry irons.

Low prices in England, and keen competition here are bringing down the price of bar iron. It is quoted at \$1.65, but is often bought inside of that figure. Thus the rolling mills with increased duty on their raw material (wrought scrap) have to be content with lower prices. Next year their case will be still harder, for then another dollar goes on their scrap iron. Lately, more of that has been coming from the United States than used to be the case.

Dull business has obliged the Ontario Rolling Mills, at Hamilton, to shut down all departments but the forge works for a few weeks.

A British company, with capital stock of about \$500,000, is reported to have been formed for the developing of the fine mining properties about Kingston.

Stevens & Burns of London, Ont., engine manufacturers, failed recently with heavy liabilities. They had spread out too much and particularly had given credit too freely in the Northwest, which has been a stumbling block to many business men this year.

A bicycle factory is to be established in Kingston, Ont.

The Cape Breton coal mines are turning out immense quantities now. In August they reached their greatest output, 200,000 tons.

The Industrial Exhibition did not show a greater number of exhibits from the United States than usual. It was

to be expected that it would, on account of the lowering of our tariff. With the obstacles to trade in agricultural implements so materially lowered, and

Chuck for Drill Grinding Machines.

J. Sellers Bancroft has assigned to William Sellers & Co., Incorporated, of

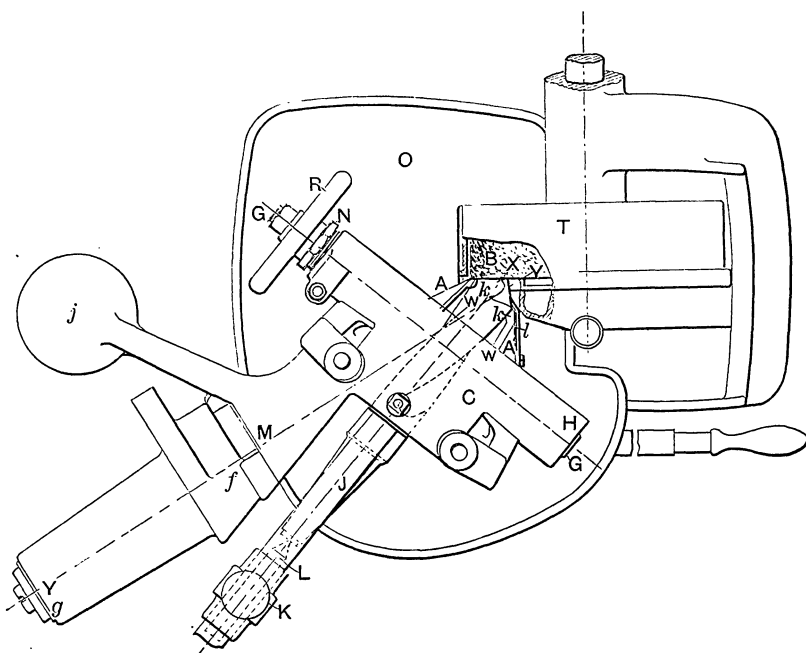


Fig. 1. - Plan of Chuck and Grinding Wheel.

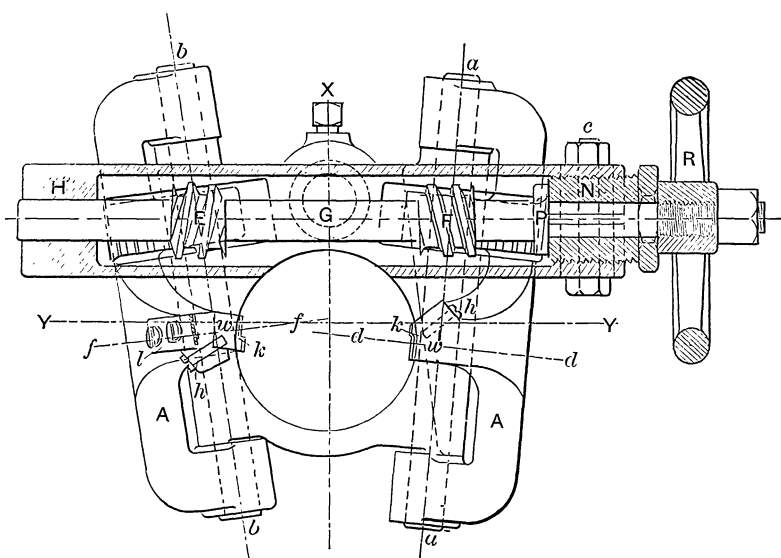


Fig. 2. - End Elevation of Chuck.

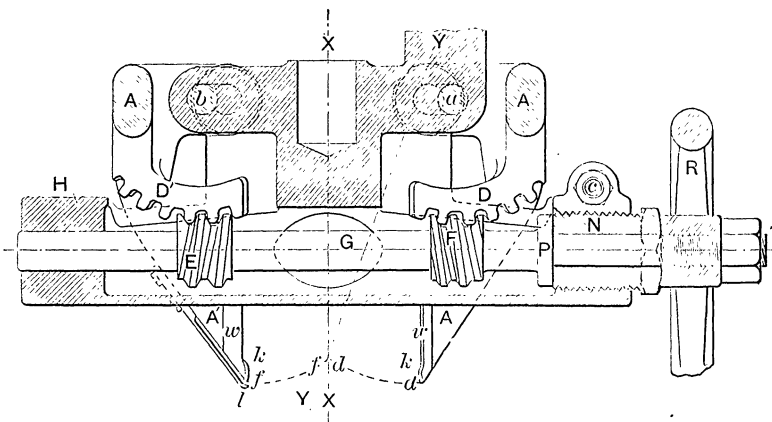


Fig. 3. - Sectional Plan of Fig. 2.

CHUCK FOR DRILL GRINDING MACHINES.

with actual trade in American implements, it was supposed that American manufacturers would have their lines on view.

Philadelphia his patent on a chuck, which is intended for holding the drill to be ground in proper position, relatively to its axis and to the axis of rotation of

the chuck, which determines the contour of the drill lip. The axes of the jaws are so located in relation to the axes of the chuck and to each other that the position of any drill held in the chuck, with relation to the axis about which its end lip is to be ground, will vary with the diameter of the drill. The gripping ends of the jaws are provided with removable dies of harder material than the jaws, secured so that their position relating to the axes of the chuck is accurately determined. Each of these dies is provided with a clamping surface and a stop, which stops determine the rotative position of the drill.

In Fig. 1, B is the grinding wheel, O the stand carrying the chuck, M the shaft of the drill chuck supported in the bearings *f* and *g* so as to turn freely about the chuck axis Y Y. X X is the axis of the drill, L the back center carrying the end of the drill; K is a cross head carrying the back center L and sliding on the rod J projecting from the back of the chuck; C is the chuck body secured to the shaft M and

Figs. 1, 3 and 4, so that any size of drill held in the chuck will be tangent to this curved surface; each die is also provided with a stop, *k*, which limits the rotation of the drill to be ground, and thus brings the cutting edge in proper relation to the two axes Y Y, X X, Fig. 1. These dies are made exactly alike in every respect and may be secured to either jaw as described, thus being interchangeable. The jaw A' is also provided with an end stop, *l*, preferably made so that it will yield under a certain pressure, secured to the jaw A', as shown in Fig. 4. It will be observed that the lines *d d* and *f f*, representing the paths of the clamping ends of the jaws and dies, are inclined, as shown in Fig. 2, so that as the jaws A, A', are closed to grasp a small drill the center of the drill is raised so as to bring it nearer to the axis Y Y about which the chuck is swung, thus automatically compensating for the decreasing thickness of the points of smaller drills, and in the plan view, Fig. 3, it will be observed that these paths form arcs of circles which draw back the

wheel B, the drill being swung or vibrated by the chuck about the axis Y Y, the jaws are released and the drill turned half way round, so as to present the opposite lip to the wheel, care being taken in each case to hold the drill firmly against the back center L when seizing it by the jaws.

San Francisco News.

During the past couple of years many projects for the establishment of new manufactures have fallen still born. Some of them if carried into execution would have made San Francisco a great iron and steel manufacturing center. It was proposed to bring ores here from Mexico, smelt them here and manufacture iron and steel; the same with ores from British Columbia, &c. Then we have had projects for the establishment of a great steel works. The financial troubles of the past year or so prevented the realization of several of these plans, while others were perhaps premature. We have, however, a couple of iron works which are fully equipped for iron and steel shipbuilding, but there is no especial need for their services as yet. We have not got quite out of the range of new projects in this line, and doubtless with the approach of better times an attempt will be made to have some of them bear fruit. The idea of establishing a shovel factory is attracting some attention. A little while since a gentleman communicated with Mayor Ellert, laying before him the project of establishing such a factory in this city. The individuals moving in the matter were James H. Mahler of Chicago and his associates. They have organized a company known as the Independent Shovel Company. They want to have inducements offered to them for the establishment of works. They expect to employ 100 men. Shovels are an article of great consumption on the Pacific Coast, especially in the mining sections. There are good facilities for shipping by rail, river and sea from San Francisco and at comparatively easy rates. Good American iron can be laid down here at \$16 a ton—that is, Alabama pig iron. There never were greater facilities for the establishment of anything of the kind than there are at present, while any institution that can live through the dull times would be sure to make money in the future days. We may say for the information of Mr. Mahler that there is no more promising location in the United States for the establishment of his industry than there is in San Francisco. The chances are that he would find quick sale among our hardwaremen for all the shovels that he could produce. As to obtaining a subsidy, we fear that there is small chance in San Francisco, though possibly Sacramento or Stockton would grant one.

There are no very active operations going on in our foundries. The rolling mills, however, are engaged upon some important work outside of that on the new City Hall. The preparation of the iron columns for the new Parrott Building on Market street will occupy a large number of men for seven or eight months. The columns will be built up with Z bars with side plates filled in. The punching of the rivet holes, riveting and planing will be done by machinery. There are 50 columns already built up and 650-foot beams. With all this the rolling mills have employed not more than one-third the men that running at full capacity

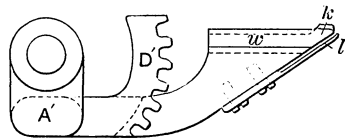


Fig. 4.—Plan of the Clamping Jaw.

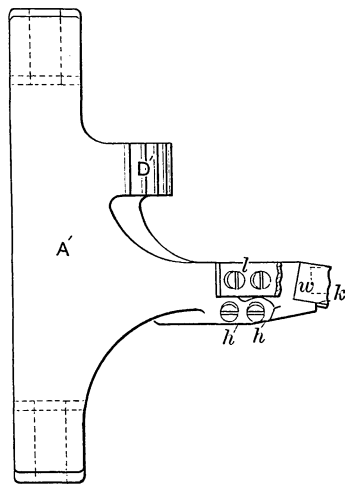


Fig 5.—Front View of Fig. 4.

CHUCK FOR DRILL GRINDING MACHINES.

provided with the counterweight *j*. Two pins, *a a*, *b b*, secured in this body, C, and at an angle with each other, as shown in Fig. 2, form bearings or pivots from the clamping jaws A, A'. These jaws are each provided with gear segments, D, D', Figs. 3, 4 and 5, into which mesh the threads E and F formed on the clamping screw G. This screw is supported at one end in a bearing, H, formed in the chuck body, and at the other end in a bushing, N, which by means of the collar P and the hub of the operating hand wheel R secures the screw G against end motion; the bushing N is provided with a screw thread on its exterior, by means of which it can be adjusted longitudinally so as to bring the jaws A, A', into proper relation in plan to the axis Y Y; the bushing is clamped to place, when adjusted, by the bolt *c*. When the screw G is revolved, the ends of the jaw A, A' move in the paths indicated by the broken lines *d d* and *f f*. The clamping ends of these jaws are provided with steel dies, W, W, which are secured to the jaws by the screws *h, h*, placed diagonally, as shown in Fig. 2, whereby the die W is firmly secured in the corner planed in the end of the jaw to receive it; the outer ends of the dies are made slightly rounding, as shown in

smaller drills closer to the body of the chuck, and hence closer in this direction to the axis Y Y, as shown by the intersection of the two axes X X and Y Y in Figs. 1 and 3, thus reducing the radius of curvature of the end surface ground on the lip of the drill and relieving the operator of all adjustments in varying from one sized drill to another, for the mere clamping of the drill in the chuck automatically places it in the proper position for producing the best form of clearance for that particular size of drill.

The operation of the chuck is as follows: The drill to be ground is inserted in the chuck, and the jaws gently closed on it by operating the hand wheel R, the end of the drill being held lightly against the elastic end stop *l*; the back center L is now brought up against the drill and the cross head K firmly clamped to place on the rod J; the jaws are now opened slightly and the drill held against the center L, while it is rotated so that the lips rest against the stops *k, k*, which thus limit the rotation of the drill and fix the position of the cutting edge to be sharpened relatively to the axis Y Y of the chuck. The hand wheel R is now operated to close the jaws and clamp the drill firmly for grinding one lip. When this has been ground by the grinding

would call for. It is to be hoped, however, that a change will soon come in this respect. None of our other establishments can boast of much better condition than can the rolling mills, and much of the iron manufacturing business is in a state of almost utter stagnation. The cheapness of iron avails nothing at present.

We have had some large lots of hardware by clipper of late, as also of bar iron, &c., but, on the whole, importation, both by sea and rail, has fallen off largely, that by rail not being over one-third to one-fourth what it was in July and August. Iron pipe still continues to come along in almost undiminished quantity.

The nail market continues as low as ever. There is a better demand, however, from both city and country. Stocks are not large and the time for the resumption of operations in building, fencing, &c., has about arrived. We may expect a fair business, but no advance in prices.

The tin plate market has had added to its stock 9485 boxes by the arrival of the "Crown of Scotland" August 13. This makes the total since January 1, 115,335 boxes.

Duluth News

The purchase by the Minnesota Iron Company of what was known as the McInnis Mine, on the Mesaba range, gives that great corporation five large mines on this range, and two or more promising explorations, besides another mine under an option that is said to be as good as closed. Several other mines are said to be in negotiation for purchase by the Minnesota, but the stories can be denied on the authority of the Mesaba manager of the company. The McInnis, the latest purchase of the company, is located in sections 5 and 6, township 57-17, being some 4 miles directly south of the Virginia group, in which are the Auburn and Norman, two of the older mines of the same concern. The McInnis, when opened, was thought to be a small property, but test pitting and exploration for nearly a year have shown up a body of ore supposed to measure not far from 2,500,000 tons. The mine is subject to a 25-cent royalty, and the price paid was \$95,000 for a $\frac{1}{10}\%$ interest. It adjoins the Rouchleau-Ray, on which the Minnesota has a \$200,000 option for the fee, and which is expected to be taken. The Duluth & Iron Range road, an allied corporation, will be built to both properties this winter.

Up to September 1 the Minnesota and their sub-companies had shipped for the season 958,000 tons of ore, and this amount has now been increased to a round 1,100,000 tons. This is without doubt the greatest quantity of ore mined in the same length of time by any iron company. It had been expected that the several operating mines of the company on both the Vermillion and Mesaba ranges would ship for the season not less than 1,500,000 tons, but this total will scarcely be reached, partly on account of the rise in freights. The Canton, Auburn and Norman, the company's operating Mesaba mines, have shipped to this date 210,000, 40,000 and 35,000 tons respectively. The two last were opened in August.

The Mahoning Ore Company, whose extensive ore deposits near Hibbing have already been fully described in *The Iron Age*, have decided on opening them this winter, and a large force will

be put at work very soon. Three openings will be made, it is understood, and all of them will be stripping, for the ore body is not far from the surface. The Duluth, Mississippi River & Northern road, whose owners are the same as the fee holders of the Mahoning mines, will carry the ore, and it will be landed at the docks of the Duluth & Winnipeg road, which have now been idle for more than a year.

It is well understood about the offices of the Duluth & Iron Range road that that company are to be prepared to handle, if called on to do so, considerably over 2,500,000 tons of ore in 1895. This will require a few new locomotives, new ore cars, another ore dock and some additional track facilities, all of which are in contemplation.

One of the six sections of the Northwestern Coal Railway's great dock at Allouez Bay has been completed. As the entire contemplated structure will be the largest dock for the receiving and storage of coal, or probably for any single commodity, it deserves somewhat of a detailed description. Its location is in a bay at the south end of the Duluth-Superior harbor, and within the city limits of Superior, though some 6 miles from the center of West Superior proper. It is a locality chosen by the land company that obtained control of the land thereabouts for the site of docks and railway terminals, and near it are the ore docks of the Duluth & Winnipeg Railway and the very extensive tracks now being put in by the Chicago, St. Paul, Minneapolis & Omaha road.

The present dock, which is one-sixth of the contemplated whole, is 1000 feet long and 475 feet wide and will be capable of storing 500,000 tons of coal. It has been a year in construction, and has cost not less than \$300,000. It is a solid sand dock, held by four timber cribs, each 250 x 24 x 23 feet, and these carefully guarded by close piling. The dock is built in contemplation of the 20-foot channel from Buffalo to Duluth, and there is a 23 foot depth of water alongside. In the present portion are 5,000,000 feet of lumber, four-fifths of which is white pine, the remainder being Washington fir. Its derricks, runways, &c., are 38 feet above the floor, and it is expected to pile coal 30 feet deep. Seven hundred horse-power are required to drive the machinery, which has a total capacity for 1400 tons per hour. The portion to which these figures relate is but one sixth of the entire plan, which is hoped to be completed some time within the next six or seven years.

Taking effect Monday, October 1, 1894, the following rates on manufactured iron will apply from Monaca, Beaver, Fallston, Beaver Falls, Pa., and all points on Pittsburgh & Lake Erie Railroad, between Monaca and Rock Point, Pa., inclusive.

To	Cents per 100 pounds in carload lots.
Cleveland, Ohio.....	6
Jamestown, N. Y.....	9½
Lima, Ohio.....	13
Massillon, Ohio.....	7½
New Philadelphia, Ohio.....	7½
Oil City, Pa.....	7
Olean, N. Y.....	9½
Ravenna, Ohio.....	6
Salamanca, N. Y.....	9½

The rail and lake rates via Cleveland, from Pittsburgh and points taking

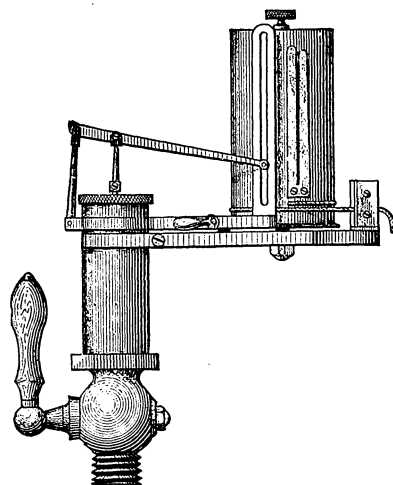
Pittsburgh rates, to places named below, will be as follows:

To	Rates in cents per 100 pounds.					
	1	2	3	4	5	6
Bay City, Mich.....	39½	34½	24½	18	16½	14
Chicago, Ill.....	42½	37½	27½	20	17½	15
Detroit, Mich.....	31	28	20	14	13	11
Duluth, Minn.....	55	47	40	31	24	20
Joliet, Ill.....	45½	40	29½	21½	18½	16
Marquette, Mich.....	55	47	37	27	23	20
St. Paul, Minn.....	55	47	40	31	24	20

The fourth class is the principal one for manufacturers of iron and steel, in carload lots.

The Valvesetter.

The valvesetter is the name of a new instrument designed by the Hine & Robertson Company of 68 Cortlandt



The Valvesetter.

street, New York. Though the steam engine indicator has reached a high degree of perfection, there are cases in which its extreme accuracy, attained as it is by such delicacy of construction, serves as a drawback to the use of the instrument. For instance, there is a hesitancy in applying a first-class instrument to a new engine, or one having recently undergone repairs or changes in the steam piping, on account of the danger of cutting the piston and cylinder by the loosened sand and scale. At such times the question of power is usually not considered and consequently an instrument such as the valvesetter will answer the requirements just as well as a better indicator and it can be used with the assurance that if any part is damaged it can be replaced at small cost. The engraving clearly shows the construction of the instrument. The parallel motion is the well known "slot and roller" device, which is considered by the makers to be sufficiently free from friction to be suitable for an instrument of this class, and it has the advantage of being easily kept in repair. By loosening the small screw shown in the carrying arm, the cock can be screwed in place without rotating the entire instrument and when in proper position can be firmly fastened. The drum is very light and the spring can be adjusted for any speed. As the device is not intended to measure power the springs are not calibrated, but are stamped with the number of pounds pressure they are suitable for.

THE WEEK.

The longest distance message ever flashed by means of the heliograph was sent from Mount Uncomphagre, Col., and read at Mount Helena, Mont., lately, the two places being 183 miles apart. The feat was accomplished by Capt. W. A. Glassford, United States Army.

Imports have increased to such an extent at Philadelphia that the wharves were choked up with goods last week, and the Collector of the Port was compelled to request a considerable increase to his force of customs officers.

The directors of a large Brooklyn jute bagging factory are out with a letter to their employees announcing that they will be obliged to close their mill on account of the removal of the duty from bagging, and the consequent inability of the industry to meet the competition of foreign cheap labor.

The Lehigh Valley Railroad did the heaviest business in its history during the month of August.

A St. Louis dispatch asserts that an English syndicate is negotiating for the purchase of all the street car manufacturing plants in that city with a view to their consolidation.

The detrimental effects of the recent depression on the jewelry manufacturing and kindred trades is clearly illustrated in the returns of the Government sales of gold bars for industrial uses during the past two years. These sales in New York City as given in the *Journal of Commerce*, by months, beginning with January, 1893, were as follows:

1893.	1894.
January....\$377,599.89	January....\$187,518.40
February.. 736,194.11	February.. 296,244.07
March..... 691,695.32	March..... 289,336.35
April..... 631,024.80	April..... 316,742.21
May..... 435,885.08	May..... 294,908.76
June..... 374,400.31	June..... 226,130.82
July..... 180,118.19	July..... 218,549.10
August..... 108,053.75	August..... 299,818.34
September. 220,677.10	
October... 267,899.64	
November. 322,729.75	
December.. 160,248.91	

It is estimated that September's sales will aggregate about \$300,000.

A fair average rice crop is looked for in the South, late estimates placing the yield in Louisiana at about 4,000,000 bushels, and the crop in North and South Carolina and Georgia at 1,300,000 bushels. The crop will not, however, fill the consumptive demand of the United States, so that higher prices for this cereal are looked for.

Statistics prepared by the Comptroller of the Currency show that the national bank circulation of this country is now nearly \$4,000,000 greater than it was a year ago.

The German Government proposes to grant a concession for laying a new cable between Germany and the United States, the cable to be laid by 1897.

The export trade of the port of Savannah, Ga., for the year 1893-94 shows an increase in value of \$5,230,000 over that of the previous year. The greatest increase was in cotton and phosphate rock.

Incensed by frequent interruptions of work, owing to strikes, and by the domineering spirit exhibited by the walking delegates of the various labor unions connected with the building trades, 120 firms engaged in various branches of building in New York City freed themselves last week into a

Building Trades League. They have mutually resolved to employ in future such men as they please, whether the men belong to labor unions or not.

A steady rise in the Treasury gold reserve is an encouraging sign of returning confidence.

News comes from England that two of the most influential and wealthy of the British trade unions—those of the boiler makers and shipbuilders—have issued a joint manifesto denouncing the socialistic platform adopted by a majority of the delegates at the late Trades Union Congress, at Norwich. This movement, it is said, has the support of a number of other unions, which desire to confine the operations of labor organizations to trade matters alone as apart from politics.

After the forest fires another element has been devastating some of the Western States. Northern Iowa and portions of Minnesota and Wisconsin were swept on Saturday by a terrific tornado, causing immense destruction of property and lamentable loss of life. Houses, barns, live stock, orchards and crops have been destroyed and great suffering imposed on the people.

A franchise has been granted by the Mexican Government to a new line of steamers which will compete with the Pacific Mail Company for the Mexican trade between the Gulf of Tehuantepec and San Francisco. Seven steamers will be run on the line, which, it is announced, will be in operation within a few months.

The latest reports from the Orient give news of a decisive victory on land by the Japanese forces. Japan's sea forces are also said to be preparing for an important engagement. So far, the superior organization of the Japanese has prevailed over the enormous resources of China.

The statistics of the New York Custom House, just issued, show that the amount of merchandise entered and not withdrawn from the bonded warehouses at this port, in the month of August, increased \$584,699 over the same period of 1893. The figures exhibit, however, a decrease of \$1,208,472 over July of this year. As goods were received in unusual quantity in the warehouses during August, just before the new tariff law came into force, the decrease is attributable entirely to the extraordinary rush to withdraw merchandise during the last four days of the month, the new law having become operative on August 28. Had it not been for this circumstance August's figures would have shown a large increase over those of July. At the rate at which bonded goods have been withdrawn in the first half of this month it is estimated that the decrease in the value of goods in the warehouses in September, as compared with August, will be quite \$7,000,000.

The London *Statist* publishes an authoritative estimate placing the world's coffee crop of 1894 at 12,500,000 bags, the largest in the history of the trade. As the maximum consumption of coffee is 10,500,000 bags the *Statist* thinks that a crash in the coffee market is in order next spring.

Revised estimates issued by the Director of the United States Mint place the gold product of the world at \$175,000,000, an increase of \$6,000,000 over the amount estimated in the annual report. The increase in this year's prod-

uct over that of last year is \$20,000,000, of which \$7,000,000 is credited to the United States and \$10,000,000 to South Africa. Director Preston expresses the opinion that the fall in the price of silver and the failure of legislation favorable to silver have operated to increase gold mining and gold production.

The Canadian Parliament has passed a bill granting to the Port Arthur, Duluth & Western Railroad Company a bonus of \$4200 a mile, or \$630,000 for the 150 miles the road is to extend. The new road runs to the gold fields near Rainy Lake.

The President has signed an act authorizing the construction of a bridge across the Mississippi River from a point within the city of Dubuque, Iowa, known as Eagle Point, to the opposite bank of the river in Grant County, Wis.

Trade Publications.

G. A. CROSBY & Co., 176 and 178 South Clinton street, Chicago, have issued the fourth edition of their catalogue of presses, dies and special machinery for sheet metal workers. This edition is much more elaborate and comprehensive than its predecessors, thus exhibiting in a striking manner the growth of this establishment, whose trade not only extends to all parts of the United States, but reaches to numerous foreign countries. The new catalogue covers 183 pages, and is handsomely printed and profusely illustrated. Several introductory pages are devoted to an enumeration of special points which are embodied in the machinery manufactured by this firm and general directions for its proper management. Power presses are then considered. Illustrations are given of a great variety of styles for punching, making can caps, cleats, pail ears, &c.; forming covers for large tin packages; for heavy punching and stamping, as required by saw and implement makers; for cutting out large articles, such as pieced tinware, boiler covers and bottoms, stove boards, coal hod bodies, steel stove tops, &c.; for cutting, punching and forming nuts, washers, &c.; drop and screw presses, hand and foot lever presses, trimming machines and crimpers are also shown in a profusion of styles. A special machine shown is the patent automatic double headed crimper, which crimps at the same time both ends on the bodies of round cans at a very high rate of speed. Their line of can making machinery has been extended very considerably of late, a number of very ingenious machines having been devised which increase the daily product of a plant and therefore reduce the cost. Among these is an automatic soldering machine and an automatic can testing machine. For those whose operations are not on a very large scale a full assortment of suitable machinery is shown, operated by power or hand. Tinner's machinery is treated very comprehensively, as well as tinner's tools. The Clark kerosene oil system for heating fire pots and floaters is also illustrated and described.

THE CHAMPION BLOWER & FORGE COMPANY, Lancaster, Pa., have issued a 128-page catalogue of convenient size, covering a line of blacksmiths' hand and power blowers, portable and stationary forges for hand and power, upright drills, bench drills, tire benders and shrinkers, screw plates, taps and dies, steel pressure blowers, fan blowers and exhaust fans. Among the new goods shown is the Champion \$10 lever blacksmith blower, with 16-inch fan and 28-inch fly wheel and the capacity of a 50-inch bellows. This tool is brought out as a leader and is marketed as perfect and complete in every respect. Another new tool prominent in the catalogue is the \$11 upright drill. This drill is described as having double journal bearings, two true and honest speeds, slatted table, 15½-inch swing and patent quick return attachment. There are some useful tables at the end of the book and it is substantially bound in a flexible cloth cover.

Washington News.

(From our Special Correspondent.)

WASHINGTON, D. C., September 25, 1894

The Tin Plate Duty.

On next Monday, October 1, 1894, by statutory enactment of the Fifty third Congress, a great industry, nurtured into vigorous expansion by the tariff act of 1890, placing a duty of 2½ cents a pound on tin plate, will have that protective rate reduced to 1½ cents.

The proviso of the act of 1890 placing certain specified conditions on the continuance of that rate of duty on tin plate after October 1, 1897, was repealed.

The new act provides "That the reduction of duty herein provided for shall take effect on and after October 1, 1894." Paragraph 121, referring to sheets or plates of iron or steel, or taggers iron or steel coated with tin or lead, &c., and commercially known as tin plates, terne plates and taggers tin.

From time to time *The Iron Age* has kept its readers promptly and fully advised, from official sources, as to the progress of the growth of the tin plate industry. The last official report on the subject carried the statistics down to the last quarter. After September 30 these valuable reports from Colonel Ayer, in charge of this branch of the work, will cease. The statistics, however, will be brought down complete to that date.

There has been considerable discussion here as to the ethics of this repeal of a provision under which capital was encouraged to embark in a practically abandoned industry. There is no question of the power of one Congress to repeal the legislation of another. In this case, however, it is generally considered as an unwarranted breach of faith on the part of the law making arm of the Government to abrogate a specific provision of law enacted for the stimulation of an industry, and which, if certain ends were not accomplished by a specified time, should expire by limitation. In this form the promoters of the encouraged industry understood beforehand what their enterprise would have to encounter.

The rate fixed is claimed as a compromise. The friends of the bill, which has since become a law, asserted at the time that 1½ cents a pound as a permanent duty was better than 2½ cents with a possibility of going on the free list after October 1, 1897. The manufacturers insisted that they would have come up to the requirements of the proviso within the limit.

The Armor Plate Report.

The report and testimony of the Congressional armor plate investigating committee are being indexed for convenience of reference. When this work is completed they will be delivered from the Government press. The volume is a ponderous mass of expert hearsay and speculative information. The subject will be taken up in the next session, and some action may be had. The Carnegie company would have fared rather roughly at the hands of the House if the chairman of the committee had not given his thorough work a partisan trend in its final stages.

The Eastern War.

The war in the far East is being watched with the deepest interest by

the naval officers old and young on duty here. This interest is heightened by the fact that the Japanese officers who have shown themselves the most able in the technique and application of naval training in real warlike operations were educated in the American school at the Annapolis United States Academy. The action at the mouth of the Yalu River is affording much material for study, but a fuller account of an official character is awaited with decided eagerness. The Department has sent fuller instructions to naval officers in those waters to forward all details promptly.

As this was the first naval encounter with modern ships and appliances of war the battle is expected to furnish some valuable material.

The Report on Rapid Fire Guns.

The report of the army board on rapid fire guns at Sandy Hook is nearing completion. This important document will be very exhaustive, but it is understood will not present a comparative view of the guns tested. The report, however, will treat on each gun, and will set forth its merits and defects, and will be a valuable contribution to the technical literature of this branch of ordnance. The competing manufacturers of machine guns in the recent test are hurrying their preparations for the proposed service test. *The Iron Age* was highly complimented by manufacturers and naval officers for the handling of the report of the board on the trial of these guns, which it was said at the time surpassed all other journals.

A high compliment has also been paid by the General of the Army and military officers and War Department officials to *The Iron Age* for the journalistic achievement in beating all other journals in the first highly illustrated presentation of the great New York and New Jersey bridge. *The Iron Age* was the first opportunity which the engineer officers of the army and engineers generally had to study the designs and engineering details of the proposed new wonder of the modern world.

The officers of the Construction and Steam Engineering departments of the United States Navy think that the object lessons now being laid before the maritime nations of the globe from the Gulf of Pe-Cheli will give a fresh impulse to the building of great ships for offensive and defensive service.

After traveling through the West, Mr. Eckels, Comptroller of the Currency, gives it as his opinion that business in that section is decidedly on the mend. He says, speaking more particularly of Ohio and Michigan: "Bankers told me they were having a larger demand for money, although they are in a position to lend freely with their present reserves. I do not know just how high the average excess over the reserve is in the West at present, but the banks are certainly in a position to accommodate all would-be borrowers. The demand for money at the higher rates which prevail in this section is a very good sign, and I think there is a decided growth of hopefulness and confidence among the banking community of the States I visited."

The tin plate works of the P. H. Laufman Company, Limited, Apollo, Pa., are kept busy in the production of Laufman's Apollo large sized terne and leaded sheets, for which the con-

cern have a very satisfactory demand. A circular issued by the company calls attention to these sheets as being coated with a mixture of tin and desilverized lead, hand double dipped, with oil finish. The sheets are made from 20 to 36 inches wide, and 60 to 120 inches long, and of No. 17 to No. 30 gauge. They are specially recommended for car roofing, eave troughs, conductor pipe and cornice work. It is claimed for them that they are an ounce lighter to the square foot than galvanized sheets and that they possess the advantage of not scaling off in working, the affinity of the metal being perfect.

Fin Propellers.

An exhibition of a semi-private nature was given last week off the Battery, in New York harbor, of a fin propelled boat, designed by Frank Taff of Whitestone, L. I. The model craft carrying this novel propulsive apparatus was fitted with a small vertical engine of ½ inch stroke, worked by steam, gasoline being used for fuel. The following account of the boat and its performance was given in the daily press: There are two fish tail shaped fins on either side of the hull, just abaft the midship section, a few inches apart, and midway between the water line and the keel. The thick, or head ends are fixed in the ends of the thrust shafts, the web ends extending aft. There are two thrust shafts extending across the hull, each shaft having a fin at either end. The shafts work alternately, counterbalancing each other, and keeping the boat steady. The main surface of the fin, which is called the web, is thinned toward the edge. The thrust of the shafts drives the fins in and out from the sides of the vessel and forces it ahead. About two minutes after the gasoline lamp was put under the boiler, 20 pounds of steam was generated. The model was launched and glided out toward midstream, followed by rowboats, which subsequently picked it up. Engineers who witnessed the work of the fins were both amazed and pleased with the performance. The action of the fin is such that there is no dead water and there is also no drag. The water is held tight. There is no wave or foamy wake produced. It is claimed that a steamer provided with fins having the same surface as its propellers have would make better time under the same expenditure of power applied to the propeller, and that power would be secured from a greatly reduced initial pressure, to the extent that 1 ton of coal would do the work of 4 tons or more now used.

An English syndicate has organized, with \$450,000 capital, to develop the iron, mica and other ores in Frontenac, Canada.

The filing of sundry legal documents at Chicago recently has brought out the interesting fact that the Illinois Steel Company's system of railroads covers 269 miles of track, connecting with railroads at 39 junction points, exclusive of those it joins at the stock yards. This extensive system of railroad is operated under independent management from that of the steel company. Each segregated portion of road has its own corporate name and organization, but all have the same corps of officers.

The Iron Age

New York, Thursday, September 27, 1894.

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CHAS. KIRCHHOFF, - - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

The Western Steel Rail Situation.

Some interesting features are presenting themselves in the Western steel rail trade. Hitherto the duty on steel rails has been sufficiently high to relieve manufacturers from the apprehension of foreign competition in the trade of the Gulf States. Prices have been fixed by internal influences, and have fluctuated according to the exigencies of domestic competition. They have yielded to some extent the past two years in sympathy with the decline in other iron and steel products, but the reduction has not been proportionately so great. Now, however, the recent cut in duties presents itself for earnest consideration as an element which may affect Western prices at least. The McKinley act in 1890 reduced the rail duty from \$17 per gross ton to \$13.44, but the decline in the price of rails on this side of the Atlantic which occurred subsequently more than offset the reduction in duty. The new rate under the act of 1894 is \$7.84 per ton, which is \$5.60 per ton lower than the McKinley rate. This will enable steel rails to be laid down at Gulf ports at a very low price. They are quoted now at £3. 5/, f.o.b. shipping ports, in England, which is equal to \$15.73. Adding the duty to this price, \$7.84, we obtain \$23.57, to which are to be added commission, insurance and freight, which may bring the total cost to about \$25 at Gulf ports, freight rates being very low on cotton steamers from English ports. The present price of American steel rails is \$25 at Chicago. Freight rates from Chicago to Southern points at which steel rail deliveries should be made to compete with deliveries at Gulf ports range from \$4 to \$6. It will be seen, therefore, that something must give way if the Southern rail trade is to be retained by American manufacturers.

Another feature is the growing importance of the Pueblo works as a factor in the Western rail trade. For years after they were established these works were in a languishing condition and were scarcely considered in the race for business. They rolled small quantities of rails for the strictly local roads and seemed to be handicapped by very high wages, unsatisfactory raw materials and the almost prohibitory rates charged for freight hauled by the Colorado railroads. But the situation is now radically different. Energetic and skillful management has wrought wonders. The plant has been improved as far as pos-

sible without rebuilding, raw materials are more carefully selected and prepared, local railroads have been shown that their own interests were subserved by making reasonable charges on freight hauled to and from the works and a new basis of wages has been established more in keeping with the existing condition of the iron trade. The consequence is that an increasing output from both blast furnaces and steel works has gone hand in hand with reduced costs. The Colorado Fuel & Iron Company have thus been enabled to demonstrate the past season that they were very distinctly in the field for business. They have secured a number of good contracts and expect to show at the end of this year that they have largely exceeded any former year's record made by the company. The success of this year brings the steel plant into prominence as the leading part of the company's properties, whereas in past years the returns from the steel plant were insignificant as compared with their coal trade. The erection of a more modern steel works, with larger capacity, has been contemplated for some time and is now regarded as almost a certainty, in view of the possibilities which have been developed under the new management. The claim is made more strongly than ever that the territory west of the Missouri River belongs to the Colorado Works.

The Lake Ore Situation.

Since it is the key to the situation in the steel trade, the developments in the Mesaba ore range are watched with the keenest interest by producers all over the country. In magnitude the resources of the range have grown steadily, until now it seems certain that the manufacturers west of the Allegheny Mountains and north of the Ohio River will have relatively cheap ores for many years to come. It has been asserted by men who are closely identified with one of the leading Mesaba interests that prices for ore for next year will be about at the level at which they now are. That seems to indicate that the tremendous struggle for supremacy now going on between some of the great interests will continue for some time to come.

One point has been raised in connection with the Mesaba ore supply which has been the subject of much controversy among furnacemen. It relates to the percentage in the burden which the fine ores of the Mesaba may be allowed to rise to. By some of the furnace interests identified with mining enterprises records have been brought forward of successful furnace work with 75 per cent. up to all Mesaba ore. One of the largest plants in the country was known to have placed the limit at 25 per cent. of the ore mixture. But it is understood that new experiments are going on with a percentage rising considerably above 30 per cent. Of course, it takes a protracted period of work to get at data

which will allow of safe comparisons, and they could not be available in the case referred to until the close of the year. One of the best managed group of two furnaces in the Pittsburgh district is reported to be doing successful work on a mixture carrying over 32 per cent. of Mesaba ore.

The question is one of the most serious import. It determines how wide the market for this class of ore is to be in the near future, and to what extent this grade will control the situation. The ores of the Gogebic, Menominee and Marquette ranges cannot be sold at anything like the figures at which the product of the new range can be landed at the furnaces. A certain quantity must be mined. It will not be taken out of the ground unless the producers get a little more than cost. Every ton more of Mesaba ore which the furnacemen can use displaces so much of the dearer product of the other ranges and narrows down the number of mines in them who can live. Every addition to the percentage of the cheaper ores which the pig iron makers can make lowers the cost of the producers in that section of the country which employs Lake ores and Connellsville and West Virginia cokes as raw material. It means that the steel works of the Central West have an enormous advantage over their rivals east of the Allegheny Mountains, and confirms the dominating position which they now occupy. To the Eastern steel makers there could be no greater blessing than a cessation of hostilities on the Mesaba range and a smart advance in the prices of Lake ores.

The Inspection of War Material.

We have had occasion recently to refer to the disadvantages of the system of appointing army and navy officers as inspectors of war material, coupled as it is with the still more vicious system of rotation of appointment to the work. Aside from the fact that the majority of officers really dislike the work, for which they are not fitted by their training, the most serious obstacle toward obtaining the best results lies in their blind adherence to the letter of the specifications. No one will think of blaming them for it. It is the natural result of an education which demands literal execution of orders, and is probably gladly, though unconsciously, followed because it gives a sense of security in unfamiliar duties.

Now as a matter of fact the ideal inspector is one who, knowing what good quality is, has the judgment to waive or modify his instructions to suit every individual case having in view solely the aim of attaining maximum quality under prevailing circumstances. Any college boy can intrench himself behind an elaborate set of specifications, rejecting the best of material but accepting with a calm conscience products considerably inferior.

We do not believe that the navy and

army authorities have any true conception of the high order of technical skill combined with great practical judgment required of a thoroughly good inspector. In fact, only the largest and most progressive of our private consumers have learnt to realize that in the last ten years. A stern face and a wise look have ceased to be the main equipment for the work. It takes a very long experience with material and with the men who make it to know when to insist with uncompromising tenacity upon the letter of the specifications and when to waive minor points for the sake of procuring the best.

We hold that unless some of our officers make this their life work, the corps as a whole has no business in our mills. From its standpoint as a great consumer the Government should command the very best trained talent. It pays good prices and should get the very best quality of material obtainable. Instead of lagging far behind in its methods of judging of what it does get, the Government should be a leader in developing the best methods of inspection.

We know that those who are in charge of drawing up the specifications for our war material point with a good deal of pride to their recent records. They argue that they furnished the incentive for the improvement in the quality of steel by drawing up requirements against which every steel maker of consequence in this country protested as excessive. We know that they feel that they literally drove American steel makers into improving quality. Since the producers did accomplish what the Government officials demanded, the latter argue that they knew better than the makers what could be accomplished, and that it was their inflexible system of inspection which largely contributed to the end attained by forcing the steel works to do their best.

We believe that in taking this ground they overrate their achievements and misunderstand the means by which the results were obtained. The manufacturers are guided by their own tests, to which they attach far more importance than they do to the figures obtained by the official tests. They understand their teachings and have available besides for study the results obtained from material which has not come up to the requirements. The incentive created by these figures is far greater than any stimulus furnished by the work of Government inspectors.

The truth is that from the superintendent down to the smallest mill boy there is little respect for the great majority of Government inspectors, simply because a few days reveal the fact that they are not experts in their work. The feeling would be quite different and the results would be far more satisfactory if the representatives of the Government in the acceptance of material were persons whose knowledge every man in the mill must admit and to whose judgment they must defer.

OBITUARY.

WALLACE H. DODGE.

Wallace Harlow Dodge, president of the Dodge Mfg. Company of Mishawaka, Ind., died on the 10th inst. Mr. Dodge's health has been very poor for the past five years. After his return from Europe in 1889, where he had gone as a member of the American Society of Mechanical Engineers, he suffered a severe attack of inflammation of the bowels, which at one time threatened to prove fatal. Since then his health has never been fully restored. He was born in Mishawaka, July 10, 1849. His education was finished at Notre Dame University at the early age of 19. He entered his father's hardware store in 1867 as bookkeeper and clerk, and while there learned the tinners' trade. After a few years he became a partner in the business, and in 1875 purchased his father's interest and continued in his own name. In 1878, in company with Henry Woodbury, under the name of Magic Jack Company, he commenced manufacturing a patented wagon jack. Mr. Woodbury soon retired and the product was extended to saw frames, door stops and a considerable line of wood hardware. In 1879 the establishment of Wachs & Schmidt, on the ground now occupied by the Dodge Mfg. Company's plant, was purchased and the new enterprise was removed to the present location under the name it now bears. On Saturday, July 10, 1881, the whole establishment was set on fire by a stroke of lightning and consumed. Though financially ruined he set about retrieving his fortune, and with no other assistance than ability and a good name, he succeeded in building up the splendid business which survives him. Before the fire of 1881, in connection with George Philion, his superintendent, some wooden split pulleys were made, and these developed such merit that an elaborate series of experiments was entered upon to determine accurately their advantages. In 1884 he boldly dismissed former lines of manufacture and devoted his energies to the production and sale of the Independence wood split pulley. About 1886 the system of power transmission by ropes was devised, and these two things have since formed the staple products of this company, which have made its name familiar to power users.

MICHAEL GREENEBAUM.

Michael Greenebaum, who was at one time a prominent heavy hardware merchant in Chicago, died at his residence in that city on the 18th inst. after a short illness. He was born in Germany February 20, 1824, and landed in New York in 1845. One year later he removed to Chicago and engaged in the plumbing and tinsmith trades, in which he continued until 1868. He was then associated with the German National Bank for a period of three years. In 1871 he embarked in the heavy hardware trade, conducting a large jobbing house and forming a wide acquaintance among consumers of iron and steel in the Northwest, retiring in 1880. His sons then conducted the business very successfully under the name of M. Greenebaum's Sons, closing it out in 1892 to engage in other lines of trade. Recently Mr. Greenebaum and his sons organized the firm of Michael Greenebaum Sons' Company, contractors, securing some large contracts for the erection of iron and steel buildings. He leaves a widow and ten children,

four of whom are sons, namely Moses S., Henry H., Gustav M. and Ben. I., all well known in the iron trade.

E. N. SHELTON.

Edward Nelson Shelton died at his residence in Birmingham, Conn., on the 16th inst. His death was not entirely unexpected, as he had been in feeble health for several months. Mr. Shelton was born September 4, 1812, at Long Hill, Huntington, Conn. He was a descendant of Daniel Shelton, who came from England to Stratford about 1690. Mr. Shelton received his education in the public school of Huntington, at the academy in Derby, at Partridge's Scientific and Military Academy at Middletown, and from scientific lectures at Yale during the winter months. His business career began in Derby in 1836, when, in connection with N. C. Sanford, under the firm name of Sanford & Shelton, he began the manufacture of tacks and nails. Mr. Sanford died in 1841, and the business was continued under Mr. Shelton's name until 1854, when the Shelton Company were organized. Mr. Shelton was the prime mover and worker in the project which resulted in the construction of the dam across the Housatonic River, which is referred to as the principal cause for the subsequent growth of Birmingham and vicinity. Mr. Shelton was the first and only president of the Housatonic Water Company, and the borough of Shelton was named in his honor. He was also the first and only president of the Birmingham National Bank, having been elected in 1848, when the bank was started. His term of office was thus 46 years, and he was probably the oldest bank president in term of office, and perhaps in years, in New England. Mr. Shelton was also identified with many other business interests in his locality, being president of the Shelton Company and a director in the Derby Silver Company, Wilcox & Howe Company and Birmingham Water Company. Up to within the last year he was also a director in the Wheeler & Wilson Mfg. Company of Bridgeport, C. Cowles & Co. of New Haven and the Howe Pin Company. He was one of the original incorporators of the Derby Savings Bank. Mr. Shelton was likewise a pioneer in developing the iron mines of Lake Superior, becoming interested in the Jackson Iron Company of Marquette, Mich., as early as 1853. This company owned and operated mines and furnaces. He also invested later in the Sharon Iron Company of Sharon, Pa., which was an outgrowth of the Jackson Iron Company. In both companies he was for years a director, and it was his custom annually to visit these fields of activity and give personal attention to his large interests there centered. Mr. Shelton was a firm believer in a policy favorable to the upbuilding of domestic industries, and during the past 30 years had by his influence and financial help contributed largely to the development of many enterprises of importance.

JAMES H. LINDSAY.

James H. Lindsay of Lindsay & McCutcheon, proprietors of the Star Iron Works, Allegheny, Pa., died at his residence in that city on Monday the 24th inst. after a lingering illness. Mr. Lindsay has been a very sick man for several years past, and at times it was thought he would not recover, but his strong constitution and the careful nursing he received triumphed. He was troubled with a complication of diseases, and had visited numerous watering places in the hope of relief. It

was thought he had received some benefits, but it was only temporary. He went to Atlantic City last winter and went home much improved in health. Last May he became sick and has since been gradually growing worse. His family expected he would recover, as he had done before, but two attacks of la grippe weakened his constitution and paved the way for his death. James H. Lindsay was born in Allegheny in 1841, and his whole life was spent in the city of his nativity. In 1865 he engaged in the iron business, organizing the firm of Lindsay & Whipple. His father, John Lindsay, was in the iron business before him, being a member of the firm of Lindsay & Graff. Later Mr. Lindsay's uncle, John McCutcheon, purchased the interest of Mr. Whipple, and the firm has continued Lindsay & McCutcheon up to the present time.

PERSONAL.

Daniel Eagan has moved his family from Sharon, Pa., to Philadelphia. The duties of Mr. Eagan as president of the American Steel Casting Company required his almost constant presence at Philadelphia, and he finally decided to remove there.

Sterling Valentine, manager of the Colebrook Furnace, at Lebanon, Pa., has resigned his position.

Commander Frederick Curtis of the United States Navy has taken charge of the work of inspecting Government armor plate at the Homestead Steel Works. The change just consummated has been expected some time.

Mr. Keiper of the Champion Blower & Forge Company, Lancaster, Pa., has just returned from a very successful tour in Europe. While there he succeeded in establishing permanent relations with leading houses, from whom the company are regularly in receipt of orders for shipment of their specialties in the line of blowers, forges, screw plates, &c.

Edward L. Ryerson, president of Joseph T. Ryerson & Son of Chicago, arrived home from Europe last week, where he had spent the summer accompanied by his wife. They were passengers on the "Teutonic," which had a most tempestuous voyage.

Dewitt Loomis, lately manager of the Detroit Steel & Spring Company of Detroit, Mich., has been elected vice-president and general manager of the company to fill the vacancy caused by the death of Charles P. Choate.

I. P. Pardee, for 15 years past superintendent of Musconetcong furnaces, at Stanhope, N. J., has resigned, and will remove to Hazleton, Pa. His successor at Stanhope will be Henry W. Lloyd, who has been assistant superintendent for some time.

Ernest S. Cronise, engineer, has severed his connection with Henry R. Worthington, and has established himself in business in iron, steel, machinery, railway equipment and supplies, at 37 Broad street, New York.

G. L. Luetscher has been appointed superintendent of the open hearth department of the Otis Steel Company, Limited, Cleveland, Ohio.

Jas. C. Steen and Geo. W. Hart have established themselves as Steen & Hart, at Cincinnati. They will make a specialty of furnishing machine designs and working drawings.

J. H. L. Todd, iron and steel merchant, of New York, arrived from Europe on Saturday on the "Touraine."

W. H. Wallace of W. H. Wallace & Co., iron merchants, New York, is a passenger on the "Lucania," which is expected to arrive on Friday.

The Queen and Crescent Route announce the following changes in their Eastern rail and water pig iron tariff, effective October 1:

To	From Dayton and Rockwood, Tenn.	Rising Fawn, Ga., and Fort Payne, Ala.	Birmingham district.
Baltimore, Md. (rail and water).....	\$3.90	\$3.86	\$3.86
Boston, Mass. (rail and water).....	4.40	4.36	4.36
Boston (via Providence), Mass. (rail and water)....	5.05	5.01	5.01
* Jersey City, N. J. (rail and water).....	4.05	4.01	4.01
New York, N. Y. (rail and water).....	4.05	4.01	4.01
Philadelphia, Pa. (rail and water).....	4.05	4.01	4.01
Providence, R. I. (rail and water).....	4.40	4.36	4.36

* In addition to the above charge the cost is as follows: in lots of 50 tons and less, 60 cents per ton; over 50 tons, 50 cents per ton.

The rates to the following points went into effect September 25:

To	From Dayton and Rockwood, Tenn.	Chattanooga, Tenn.	Birmingham, Ala., and group.
Braddock, Pa.....	\$3.30	\$3.50	\$4.00
Detroit, Mich.....	2.80	3.00	3.50
Dubuque, Iowa.....	3.25	3.45	3.70
Duluth, Minn.....	2.45	2.85	3.10
Muncie, Ind.....	2.55	2.75	3.00
Milwaukee (all rail), Wis.....	3.25	3.45	3.70
Munhall, Pa.....	3.60	3.80	4.30
Ogden, Utah.....	16.96	16.96	16.96
Omaha, Neb.....	4.50	4.50	4.50
Racine, Wis.....	3.25	3.45	3.70
Salt Lake City, Utah.....	16.96	16.96	16.96
Sioux City, Iowa.....	4.50	4.50	4.50
Superior, Wis.....	4.65	4.85	5.10

The rates apply to tons of 2268 pounds when in carload lots.

The new beam mill of A. & P. Roberts, Pencoyd Iron Works, Philadelphia, will soon be completed.

Henderson Tin Plate Company of Norristown, Pa., have arranged their works for the accommodation of five tinning machines. They have now in operation one Morewood set and are turning out a "Worcester" gradeterne. Another machine, for coke tins, is about to be installed.

English journals credit Hiram Maxim with the statement that, given the sum of \$250 000, which he estimates to be the cost of constructing a practical airship, he will undertake to cross the English Channel by its means before August 31, 1895.

The recent forest fires are calculated to have destroyed 700,000,000 feet of standing timber in the upper Michigan peninsula.

Ex-General Master Workman Powderly of the Knights of Labor has been admitted to the bar in Pennsylvania, and will, it is said, practice law in New York City.

MANUFACTURING.

Iron and Steel.

No further action has been taken by the blast furnace employees in the Mahoning Valley on the wages question, and the sentiment among the men is that by reason of the present low prices for pig iron it would be unwise for them to insist upon a restoration of the 10 per cent. reduction in wages made some months ago.

Jones & Laughlins, Limited, of the American Iron & Steel Works, Pittsburgh, have been granted permission by the Government to build four piers in the Monongahela River, in the rear of their plant, for the purpose of erecting a coal elevator by which coal can be taken direct from barges on the river into their plant.

The wages of the puddlers in the employ of the Oliver Iron & Steel Company, Pittsburgh, have been reduced from \$4 to \$3.75 per ton. This makes the fourth concern in the Pittsburgh district paying less than \$4 per ton for boiling, the regular Amalgamated Association price. The other three concerns are Clinton Iron & Steel Company, Phillips, Nimick & Co., and Moorhead Bros. & Co., Incorporated.

The Diamond Steel Company, Reading, Pa., manufacturers of high grade crucible steels, have lately completed a new 14-inch mill, which more than doubles their capacity. The plant of this concern has been in operation five days a week for some time, but during this month has been running nearly full time, and quite a large number of orders are on hand. The concern make a specialty of cutlery, and have lately secured several large contracts. They also make a great many die blocks of all sizes, and have received quite a number of orders for dies. They are also prepared to make all sizes and shapes of steel for all purposes, and they advise us their product is giving very good satisfaction wherever tried.

It is stated that arrangements have practically been completed for the establishment of a tin plate plant in Youngstown, Ohio. A number of capitalists of that city are said to be interested in the new venture.

Alice Furnace of the Wheeler Furnace Company, Sharon, Pa., resumed blast last week. A new blowing engine, weighing 110 tons and built by Wm. Tod & Co., Youngstown, Ohio, has been erected at this plant, and other extensive and important improvements have been made. Alice Furnace can now be regarded as one of the best equipped furnaces in either the Mahoning or Shenango valleys.

The New Castle Steel & Tin Plate Company, New Castle, Pa., have not made any individual proposition to their workmen looking to a reduction in wages, but have met the officials of the Amalgamated Association in conference with other manufacturers.

H. E. Collins & Co., Bank of Commerce Building, Pittsburgh, have received a contract for the iron buildings to be erected by the Keystone Rolling Mill Company of Pittsburgh, and which will take the place of the wooden buildings recently destroyed by fire.

The Ohio Steel Company, Youngstown, Ohio, whose Bessemer plant now under erection at that place is fast approaching completion, have increased their capital stock to \$1,250,000, and it is expected the increase will be largely taken by the present stockholders. When this concern commenced the erection of the steel plant it was believed that \$750,000 would be sufficient to cover the cost, but it was found later that it would be necessary to increase the stock to \$1,000,000 by reason of the extensive improvements made. It has since been found necessary to increase the capital stock for the second time to the amount given above. Although a very large force of men are employed in the construction of this plant, it is not expected that the concern will be making steel before early next year.

The Midland Steel Company of Muncie, Ind., have begun the erection of another open hearth furnace, rendered necessary by the increasing business of the finishing department. The product of this company is fine sheets.

The plant of the Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, has been completed and the machinery was put in operation last week. The works are located near the plant of the Andrews Brothers Company, which concern will

furnish the iron and steel sheets to the new firm. As previously announced, the new concern will manufacture iron and steel roofing of all kinds under patents granted to John O. Pew, general manager.

The stockholders of the bankrupt Williams Rolling Mill Company, at Muscatine, Iowa, will hold a meeting on the 29th inst. to consider a proposition submitted and recommended by the Board of Directors to adopt amendments to the articles of incorporation of the company, so as to provide for the issuance of preferred stock by the company.

The New Albany Forge & Rolling Mills, at New Albany, Ind., have been leased by Joseph Joseph & Bro. of Cincinnati, first mortgage bondholders. The lessees will immediately repair the plant and put it in operation. It has a capacity of 90 axles per day. Josephus Norton will be superintendent.

The Indiana Steel Casting Company, whose partly erected works at Frankton, Ind., were twice wrecked by wind storms, have closed a contract to locate the plant at Anderson, Ind. The company have an authorized capital stock of \$200,000. William Chambers is the manager.

The citizens of Anderson, Ind., claim that they will shortly have a larger tin plate plant than any other city in the country. The company who will build the works are stated to include a number of Indiana and Illinois capitalists, headed by Philip Matter of Marion and C. J. Dorsey of Anderson. The project contemplates a twelve-mill plant fully equipped for finishing bright andterne plates. Surveyors have been put to work on the site selected, in order to push the preliminaries as rapidly as possible.

The report that the Andrews Hitchcock Iron Company, Youngstown, Ohio, would erect a new blast furnace is untrue. The report doubtless arose from the fact that this firm are now repairing their old furnace, putting in a new lining and new bosh.

We are officially advised that the statement that the Canonsburg Iron & Steel Company, Canonsburg, Pa., would add two open hearth steel furnaces to their plant is untrue.

The Ewald Iron Company, Louisville, Ky., signed the Amalgamated Association scale last week.

The stockholders of the La Belle Iron Works, Wheeling, W. Va., met last week and re-elected the old Board of Directors. C. A. Robinson was re-elected president, John P. Wright secretary. Some routine business was transacted and certain improvements proposed by the above concern were discussed but no definite action taken.

The effort to locate a tin plate plant at Streator, Ill., has come to grief. The promoters represented that they had \$150,000 to invest; that they desired to build works in a district having an abundance of coal; that they therefore preferred Streator to any point in natural gas territory, in which fuel might suddenly run short, and that all they wanted Streator to do was to raise \$11,000 toward the erection of buildings. The \$11,000 had been nearly subscribed by local business interests when the promoters asked that it be raised to \$20,000, as that sum had been offered as a bonus by another city. Immediately upon the announcement of this demand the scheme was dropped by Streator.

It is stated that a number of Chicago capitalists are considering the advisability of locating a plant at Newark, Ohio, for the manufacture of tin plate.

The metal wheelers in the converting departments of the Homestead Steel Works, Homestead, Pa., have been reduced 35 per cent.

The Otis Steel Company, Limited, of Cleveland, Ohio, are running full in every department. They are operating four basic and two acid open hearth furnaces. An excellent quality of basic steel is being made, since it runs steadily under 0.02 phosphorus and 0.03 sulphur. The company are making acid tire and axle steel and acid steel castings, acid and basic plate steel and extra basic wire billets.

The Dauphin County Court, Pennsylvania, made an order last week authorizing the receivers of the American Tube & Iron Company to make a payment of 10 per cent. on the claims of creditors.

We are advised by Thomas Ward, general manager, that the Birmingham Rolling Mill Company, at Birmingham, Ala., have under advisement the question of establish-

ing a tin plate plant to be operated in connection with their rolling mill. If built, it will be the first tin plate mill in the South.

The Cambria Iron Company have declared a dividend of 2 per cent., payable October 1.

It is reported that the Anderson Iron & Bolt Company will build a rolling mill to operate in connection with their factory at Anderson, Ind.

M. A. Halden & Co., manufacturers of iron and corrugated roofing, at Philadelphia, Pa., have made an assignment. The liabilities are said to be \$12,000, with nominal assets of \$17,000.

The Dayton Malleable Iron Works, at Dayton, Ohio, are experiencing a brisk business revival. The force has recently been largely increased, so that the works are at present running two-thirds full.

H. Stephen & Co., iron and steel commission merchants of Philadelphia, Pa., have made an assignment for the benefit of creditors. It is stated that the assignment was due to the inability of the firm to collect outstanding debts. The assets are said to be in the neighborhood of \$15,000 and the liabilities \$9000.

Announcement is made that the Junction Iron Company, Mingo Junction, Ohio, have purchased the entire interests of the Laughlin Nail Company, Wheeling, W. Va., in the Laughlin & Junction Steel Company, at Mingo Junction, Ohio. These two concerns have each owned a half interest in this plant for some time, and it is not expected that the change made will affect the running of the works.

During this week the receivers of the American Tube & Iron Company, Middletown, Pa., and Youngstown, Ohio, will pay the creditors of that concern 10 per cent. of the amount due them, and in addition to this the accrued interest on said claims will also be paid.

Negotiations are now in progress looking to the leasing of Soho Furnace of the Moorhead-McCleave Company of Pittsburgh, which has been idle for about three years. It is understood that an Eastern concern and also two Pittsburgh steel firms are endeavoring to secure control of the plant and the deal for the leasing of the furnace will doubtless be closed this week. The plant is understood to be in very good condition, having been extensively repaired and improved just a short time before it was put out of blast. It has a capacity for turning out about 200 tons of iron per day. In case this stack is leased and put in blast, every furnace in Allegheny County, 26 in all, will be in operation, Soho being the only idle furnace in the Pittsburgh district at the present time.

Fulton Furnace of the Globe Iron Company, at Jackson, Ohio, has blown in after a long idleness. The furnace starts with a capacity rated at 20 to 24 tons of high silicon softeners.

The Bessemer department of the Troy Steel & Iron Company, Troy, N. Y., has started up.

Machinery.

The work of concentrating the different plants of the Westinghouse Electric & Mfg. Company at Brinton, Pa., where the large new plant is now under erection, will be commenced within the next 30 days. The batteries and boilers are now being arranged and the plant is being put in readiness to receive the machinery from the other establishments. The plant in Allegheny, Pa., will probably be the first to be removed. Following this the plant at Newark, N. J., will be removed to Brinton and then the work of removal of the plant in Pittsburgh will be commenced. The Westinghouse Electric & Mfg. Company have instituted a suit in the United States Circuit Court against the General Electric Company for an injunction and damages on account of an alleged violation by the defendant company of a patent purchased by the Westinghouse Electric & Mfg. Company. The complainants charge that the Westinghouse Company are sustaining heavy losses by the unlicensed use of the converters by the General Electric Company. The court is asked to appoint a referee to compute the profits made by the General Electric Company and the damage done to the complainants and an injunction is asked for to prevent the continued violation of the patent.

The Board of Directors of the Westinghouse Air Brake Company, Pittsburgh,

have declared the regularly quarterly dividend of 5 per cent.

The Board of Directors of the Westinghouse Machine Company, Pittsburgh, have declared the regular quarterly dividend of 1½ per cent. on the preferred and capital stock of the company.

A report has been widely circulated that the Berlin Machine Works, at Beloit, Wis., were about to remove to Green Bay, but it is denied by the officers of the company.

The Moore Mfg. & Foundry Company of Milwaukee, Wis., will do their last day's work at the old plant September 29, beginning business at the new location in South Milwaukee the following week. The buildings are ready for use and the appliances for power are in place.

Arrangements are reported to have been completed for the erection of large shops at Dunkirk, Ind., by the Dunkirk Locomotive Works. If the plans published are executed the plant will be a large one, no less than 12 buildings being contemplated.

The Lane & Bodley Company, manufacturers of Corliss engines, saw mills, electric light installation, &c., Cincinnati, Ohio, will remodel their machine shop. The new structure will be six stories in height, 40 x 147, and will be supplied with a new engine and boiler outfit, electric light plant, and the machinery will be operated by means of electrical power transmission. This latter feature has been decided upon after careful consideration and more particularly in view of the great loss of power by friction generated under the old system. The remodeling and rebuilding of the shops, it is estimated, will increase their present capacity 100 per cent. In the matter of business, they state that an encouraging sign of resumption of the manufacturing interests is the frequency with which they receive orders for shafting, hangers and pulleys, mostly from the smaller establishments, while the saw mill business, which has been so stagnant, is also showing an increased activity. Among present outfits being constructed are the Syms & Dudley Paper Mill, at Watervliet, Mich., with large Corliss engine and boilers, also electric light plant; the Carburuss Cotton Mill, Carburuss, N. C., with an entire new steam power generating plant; the Industrial School for Boys, at Waukesha, Wis., electric light installation, and others.

Bids were opened at Pittsburgh last week by the Department of Public Works for the supplying of two new high grade pumping engines for the Brilliant Station water works, the engines to have a capacity of about 12,000,000 gallons per day. Bids were asked for either two or four engines. The Edward P. Allis Company, Milwaukee, Wis., bid \$173,000 for two engines and \$330,000 for four, this being the lowest bid received. Henry R. Worthington of Philadelphia bid \$173,000 for two and \$338,000 for four. The bid of the Wilson-Snyder Mfg. Company of Pittsburgh was \$175,490 for two and \$350,980 for four. The highest bidder was the Holly Mfg. Company, Troy, N. Y., who bid \$191,640 for two engines and \$374,000 for four. The contract will likely be awarded this week.

The Niagara Stamping & Tool Company of Buffalo, N. Y., have put on the market a set of machinery for manufacturing corrugated and plain conductor pipe in lengths of 10 feet.

The Hydraulic Press Brick Company, St. Louis, Mo., are issuing a four-page circular to the trade illustrating and describing Graves' patent oil burner, which they manufacture. A sectional drawing of the burner is shown, and a full description accompanies the drawing. This burner is now in use in a number of large establishments.

J. B. Coles' foundry and machine shop, at Asheville, N. C., has been burned, entailing a loss of \$5000.

Maris & Beekley, Philadelphia, report business with them much improved and that they have a number of orders on their books awaiting fulfillment. Among the orders completed and in course of completion are the following: A 12 ton traveling crane, 43 feet long, and runways 111 feet long, for the Tokyo Electric Light Company, Tokyo, Japan; a 10-ton traveling crane, 30 feet long, for the Murray Iron Works Company, Burlington, Iowa. Both these cranes are fitted with the firm's new two-speed automatic friction brake hoist. They are also furnishing to the New Castle Steel & Tin Plate Company, New Castle, Pa., a 3000-pound 90-foot traveling crane, with two 1500-pound trolleys. This crane

is a duplicate of one already supplied by the firm.

The new foundry of Armitage, Herschell & Co., at Buffalo, N. Y., is nearly completed. It is larger and much better equipped than the foundry destroyed by fire a few months ago.

The Edinburg Foundry & Machine Company, at Edinburg, Ind., have assigned. The indebtedness amounts to \$16,000, and the assets consist of the plant, which originally cost \$100,000.

L. E. Hoyt & Co. of Walton, N. Y., have commenced rebuilding their foundry, recently burned.

The Spicer Mfg. Company, New Philadelphia, Ohio, made a shipment on the 24th inst. of three carloads of rolling mill machinery to the Whitaker Iron Company of Wheeling, W. Va.

The Scottdale Iron & Steel Company, Scottdale, Pa., have begun the erection of a new foundry building, 60 x 105 feet in size.

The Enterprise Machine Works, at Elyria, Ohio, have been completely destroyed by fire, entailing a loss estimated at \$10,000.

The Bellevue Foundry & Machine Works, at Bellevue, N. Y., have been sold at assignee sale to Samuel R. James. The plant is a new one and has never been operated.

Hardware.

Negotiations for building a new bicycle factory, which have been in progress between the Keystone Bicycle Company and Weatherly Board of Trade of Weatherly, Pa., were closed on the 14th inst. Work on the buildings will be begun at once.

Excelsior Cutlery Company (Swedish Razor Company), Worcester, Mass., have recently doubled their capital stock and are engaged in making a corresponding increase in their manufacturing facilities. This concern report a large supply of orders, some of which are from foreign countries.

The Wire Goods Company, Worcester, are manufacturing a full line of bicycle spokes. In a circular devoted to these goods illustrations and list prices are given of spokes swaged or reduced, single or double butted, and of plain spokes (not swaged) headed and bent. Prices are also given for heading, bending and threading spokes. Threads are either rolled or machine cut, as the customer may prefer. The company remark that they have no preference in the matter, but think they have brought the rolled thread to great perfection, and are proud of rolled threads made by their patent process.

The plant formerly operated under the name of the L. M. Dayton Bolt, Nut & Hinge Works, Cincinnati, Ohio, has been purchased by Seward Heidelberg, Isaac Joseph, E. H. Flick and Morris Joseph, all of Cincinnati. A new company have been incorporated under the State laws of Ohio with a capital stock of \$100,000, which will be known as the American Iron & Bolt Company. The mills of the old concern were started up on the 17th inst. with a force of 350 men, which it is intended to increase to 500 within 30 days. In the interval, active preparations will be made to increase the productive capacity of the works largely, which the new company find necessary. They report a large number of orders already booked for early delivery and the prospects for a steady increase very favorable. Their principal productions will be bar, roofing and stove pipe iron, bridge rods, hinges, bolts, nuts, gimlet pointed coach screws, &c. J. Hervey, who for 15 years past was connected with the old concern, will continue with the new company, acting as assistant purchasing agent.

The Cincinnati Barb Wire Fence Company, Cincinnati, Ohio, with works at Fairmount, Ohio, report that they are operating the latter day and night now and state that their business for the months of June, July and August showed an increase over the same period a year ago of 90 per cent., and are now operating a larger force than ever before in the history of their business.

Wright & Alford have made arrangements to build a shovel factory at Anderson, Ind. They have been given free gas, land and a cash bonus in consideration of the promised employment of 200 hands.

The business heretofore conducted under the name of J. F. Harcourt's Sons' Excelsior Tackle Block Works has recently been purchased by Joseph Blentlinger, James Payne and W. A. Payne, formerly with the old concern, who will operate the business under the name of the Eureka Tackle Block

Works, continuing at the former stand, 106 and 108 East Front street, where they will endeavor to keep constantly in stock a full assortment of blocks, so as to insure prompt shipments. Business, it is stated by them, has shown considerable improvement during the past few weeks.

The Stover Bicycle Works, at Freeport, Ill., are to be considerably improved this fall and winter, so that manufacturing can be prosecuted on a much more extensive scale next year.

The building occupied by the Marble Cycle Company of Plymouth, Ind., was recently seriously damaged by lightning. An end of the third story was completely torn off, admitting a downpour of rain which did some injury to valuable machinery.

Cattaraugus Cutlery Company, Little Valley, N. Y., have been adding to their force of employees, and are now running a full complement of hands. The time on which the men have been working has been extended from 40 to 60 hours per week. About 160 men are employed.

The Lockwood Mfg. Company, South Norwalk, Conn., are adding another story to their factory.

The Miller Lock Company of St. Louis, Mo., have been incorporated, with a capital of \$100,000. The incorporators are L. C. Miller, William H. Thompson and E. B. Adams.

Cleveland Twist Drill Company, Cleveland, Ohio, advise us that they have had a good business during the past summer, and at the present time are full of orders. They are running full capacity and eight hours per day. They intend on October 1 to run ten hours, which they hope to keep up indefinitely. The company have outgrown their present facilities and contemplate putting up an addition to their plant this fall if prospects continue as favorable as they are at the present time.

Patents have recently been issued to the Keating Wheel Company, Holyoke, Mass., for improvements in the construction of bicycles. This company are preparing a '95 roadster weighing 20 pounds, including brake and a good, easy, comfortable saddle.

The Union Lock & Hardware Company, Limited, of Lancaster, Pa., are bringing out a line of locks and builders' hardware, which they feel confident will be received with favor by the trade. Their location and facilities are excellent for the line of work which they have undertaken, and they should be able to materially increase their business with the hardware trade. They are also looking for business in the way of fine brass and gray iron castings, and are in good position for turning out this class of work.

American Axe & Tool Company report larger shipments of axes and edge tools during the last three months than ever before in the same space of time. We are advised their factories are all in operation and run to their full capacity. Further, they have sufficient orders on hand to give employment for some months to come.

Miscellaneous.

The Board of Directors of the Philadelphia Natural Gas Company, Pittsburgh, have declared a dividend of 1 per cent.

The Special Wood Working Company, Warren, Ohio, have filed papers with the Secretary of State, at Columbus, Ohio, increasing the capital stock from \$10,000 to \$15,000 and changing the name to the Packard Enameling Company.

The McConway & Torley Company, Pittsburgh, Pa., manufacturers of malleable iron castings and sole manufacturers of the Janney coupler for passenger and freight cars, are operating their plant single turn with about half of the usual force of men.

The Manufacturers' Natural Gas Company of Pittsburgh have declared the regular monthly dividend of one-half of 1 per cent., payable on the 20th inst.

The new plant of the Pittsburgh Reduction Company of Pittsburgh, manufacturers of pure aluminum, which has been under construction at Niagara Falls, N. Y., for some months is rapidly approaching completion, and will probably be ready for occupancy by December 1 next. Much of the machinery has been put in position, and work on the balance of the equipment is being pushed forward as fast as possible. The electrical machinery for the plant, which was built by the General Electric Company, at Schenectady, N. Y., has been

completed and tested with very satisfactory results. This new plant has a very much larger capacity than the present plant of the above concern located at New Kensington, Pa.

The Bostwick Steel Lath Company, Niles, Ohio, have received a medal and diploma from the first annual Chicago Building Trades and National Exhibition, held under the auspices of the Illinois Chapter of the American Institute of Architects. This concern have recently added another improved machine to their plant, making the third since they started in business three years ago.

In the courts at Pittsburgh last week an opinion was handed down in the case of the Consolidated Vapor Stove Company, Cleveland, Ohio, against the Ellwood Gas Stove & Stamping Company, Ellwood City, Pa. The bill of the complainants was dismissed at their cost. An infringement of a patent gasoline stove was alleged.

The Whiteley Malleable Castings Company of Muncie, Ind., are now operating their new works. The company believe they have the best equipped malleable iron plant in the world. It has electrical equipment throughout, and is arranged with railroad tracks, tramways, traveling cranes, and all labor saving devices, added to the advantages they have in natural gas. They are melting gray iron with natural gas. Their capacity is 12,000 tons of malleable iron per year and 10,000 tons of gray iron.

The Goodwin Car Company have filed articles of incorporation with the county recorder, at Des Moines, Iowa. They have an authorized capital of \$2,000,000. John M. Goodwin, R. A. Traverse and W. A. Drake are the incorporators. The directors are John M. Goodwin, Albert T. Otto, Robert A. Kramer, E. W. Goodwin, Alexander Mason, George Richter and H. T. Tate, of whom John M. Goodwin is the president, H. T. Tate the secretary, Alexander Mason the treasurer, John M. Goodwin general manager and C. E. Hunn is assistant secretary. The business of the company is stated to be the manufacture of cars.

Negotiations between Shoenberger, Speer & Co., the Carrie Furnace Company of Pittsburgh, and Morris & J. M. Sellers of Chicago, in relation to the Sellers ore property on the Mesabi range, near Hibbing, have been consummated, and a company, to be known as the Sellers Ore Company, formed. Active work of development will be commenced in the near future. While negotiations were based upon a showing of 1,500,000 tons of ore, averaging not less than 63½ per cent. metallic iron and not over 0.04 phosphorus or over 0.6 manganese, there were proven over 3,200,000 tons of ore, and that without reaching the limits or depth of the ore body.

The Penn Bridge Company, Beaver Falls, Pa., builders of bridges and structural material in iron and steel, have received the contract for the erection of a bridge across the Susquehanna River at Plymouth, Pa., from the Plymouth Bridge Company. The bridge is designed for highway traffic and an electric street car line. It consists of five spans of 220 feet each, with a span over the Delaware, Lackawanna & Western Railroad tracks of 125 feet and 1500 lineal feet of trestle approach across Richards Island and the low bottoms on the east side of the river. In connection with the bridge there is about a mile of turnpike road opening up a new direct and level route from Plymouth to Wilkes-Barre, and shortening the distance between these two cities nearly a mile. The Penn Bridge Company are also building the new bridge across the Monongahela River at Bellevernon, Pa., which consists of three spans of 365 feet each. Jutte & Foley of Pittsburgh are doing the sub-structure on both the above bridges.

A late dispatch from Erie, Pa., states that the Erie Car Works are on fire, with no prospect of being saved. The plant was valued at \$250,000.

At Los Angeles, Cal., the Self Anchoring Suspension Bridge Company, capital \$1,000,000, have been incorporated, their object being to build, own, control and sell self anchoring bridges. Los Angeles is the principal place of business, and the directors are G. W. Frederick, A. B. Salisbury and G. W. Heald, all of Los Angeles.

The American Wire Nail Works of Anderson, Ind., are enlarging their plant by the erection of a structure 60 x 100 feet, to be used as a galvanizing room.

The Iron and Metal Trades.

There have been very few developments during the past week to clearly indicate the further course of the markets. The outlook is still hopeless as to the chances, in the near future, for a volume of business which will stop losses and give manufacturers a reasonable profit for their work. The whole American Iron trade seems possessed of a mad desire for tonnage. There seems to have been a general acceptance of principles which are not necessarily the wisest in all cases because they are avowed as the guiding ideas in a few conspicuously successful instances.

There has been quite a general advance in rates of freight, to go into effect on October 1, and this had led to some rushing of deliveries. As yet the efforts to make the buyer pay the advance have not been highly successful, and the next few weeks may show that the fierce competition will simply force distant works to lower their mill prices.

Bessemer Pig is weaker in Pittsburgh, which is not a matter of surprise. Indeed, the astonishing thing is that it has held its own quite so long. The Steel works appear to be discounting the future, since Billet prices are lower than cost of conversion based on present Iron prices would justify. The fact that a surplus of Bessemer Pig Iron is coming into sight shows that their expectations may be realized.

With a fuller supply of Pig Iron, some of the converting capacity in the Pittsburgh district may be brought into the Billet market. A readjustment of Steel Rail prices is looked forward to. The present rates are regarded as untenable for 1895 and the general Steel trade looks forward anxiously for the establishment of figures which will encourage instead of discouraging buying, and thus divert the Rail mills into their proper channel.

Pittsburgh reports some good sales of Wrought Iron Pipe for natural gas lines and notes one good sale of Structural Steel for Cleveland. Chicago has some car orders in sight and is doing considerable in Bridge work. The order for the Plates for the new lake vessel went to Pittsburgh, and it is possible that some minor ship work originating on the Delaware may also go in that direction.

A moderate lot of Wire Rods has been sold for export to Canada.

The rush into the Tin Plate industry is attracting attention. Hardly a week passes by but what new projects are announced, and what is far more tangible, there is recorded the placing of contracts for Tin Plate machinery.

It may be of interest to note that Tin Plate Bars sell much closer to the ordinary Billet in England than they do in this country. We have reports of actual recent sales at £3. 15/, delivered in Wales, equivalent to say \$18.25. In the Pittsburgh district they are reported to have sold at \$23 @ \$23.50, or say \$6.50 @ \$7 above the common 4-inch Billet. In England the difference is less than \$1.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, September 26, 1894.

Pig Iron.—Local Coke Iron has again been quite active and indications are much stronger of a stiffening in prices. Makers are getting such an accumulation of orders that they are more independent. They are also strengthened in this feeling by the fact that a considerable advance can be made without surrendering any part of their market to outside Irons. Among the orders placed during the week were several 1000-ton lots. Sales of Spiegel are reported, one of the Illinois Steel Company's furnaces being in regular operation on this product. Southern Soft Irons are in moderate demand, but no large sales have been made in this locality. Furnace companies with but one or two exceptions, and those small concerns, are well sold up on this grade and hold prices very firmly. A low contract, however, is reported to have been made for Southern Gray Forge. The pressure to dispose of bankrupt stocks of Lake Superior Charcoal Iron appears to have been removed for the time, and quotations are again coming entirely from actual makers. Quotations are given as follows for cash:

Lake Superior Charcoal.....	\$14.50 @	\$15.00
Local Coke Foundry, No. 1....	10.25 @	10.50
Local Coke Foundry, No. 2....	10.00 @	10.25
Local Coke Foundry, No. 3....	9.50 @	10.00
Local Scotch.....	10.25 @	11.00
Ohio Strong Softeners No. 1....	13.00 @	13.50
Southern Silvery, No. 1.....	..... @	.....
Southern Silvery, No. 2.....	..... @	.....
Southern Coke, No. 2.....	10.75 @	11.25
Southern Coke, No. 3.....	10.50 @	10.75
Southern, No. 1 Soft.....	10.75 @	11.25
Southern, No. 2 Soft.....	10.50 @	10.75
Alabama Car Wheel.....	17.50 @	18.00
Jackson County Silvery.....	15.50 @	16.00
Other Ohio Silvery.....	14.25 @	14.50
Coke Bessemer.....	11.25 @	11.50
Coke Malleable.....	10.5 @	11.25
Spiegeleisen, 20 %.....	..... @	26.00

Bars.—The character of the trade shows little change. The demand for small lots of Bar Iron is quite fair, but large orders are scarce notwithstanding continued inquiries. A local interest has contracted for 200 refrigerator cars, which will give some mill a neat bit of work. Outside manufacturers are endeavoring to get buyers to stand the advance in freight, but quotations may still be made at 1.05¢ @ 1.10¢, Chicago, on mill shipments of Common Iron from Old Rail mixture and 1.15¢ @ 1.20¢ on guaranteed Iron. Soft Steel Bars from strictly Billet stock are quoted at 1.25¢ @ 1.30¢, Chicago, for mill shipments of ordinary quantities. Jobbers steadily receive a good run of orders from their customers and quote store prices 1.25¢ upward for Iron and 1.35¢ upward for Soft Steel.

Structural Material.—Local bridge works have been successful in competing for Chicago business the past week. The bridge line has latterly been much more active than the building interest. Work steadily comes forward from unexpected quarters. Quite a number of contracts are now in sight. Leading manufacturers of bridge material are falling in arrears on shipments and in some cases customers have despaired of securing deliveries and replaced their contracts with other concerns. Quotations for mill shipments, Chicago delivery, are as follows: Beams and Channels, 1.45¢ @ 1.50¢; Angles, 1.40¢ @ 1.45¢; Tees, 1.65¢; Universal Plates, 1.40¢ @ 1.45¢. Small lots of Beams and Channels from stock, 1.75¢ @ 1.90¢; Angles, 1.50¢ @ 1.60¢; Tees, 1.70¢ @ 1.80¢.

Plates.—Trade has latterly fallen off in this market. September will show a decrease in the volume of business handled here as compared with last month. Boiler Tubes are weak. Mill prices on Plates are shaded by some makers, but quotations are firmly maintained by others. Mill shipments, Chicago delivery, are quoted as follows: Tank Steel, 1.40¢ @ 1.50¢; Flange Steel, 1.65¢ @ 2.10¢; Fire Box, 1.65¢ @ 5¢. Store prices are as follows: Iron or Steel Sheets, Nos. 10 to 14, 1.70¢ @ 1.80¢; Tank Steel, 1.50¢ @ 1.65¢; Flange Steel, 2¢ @ 2.15¢; Boiler Tubes, in carloads, 75 % off.

Sheets.—Manufacturers' agents report mills as busy as ever and deliveries constantly falling behind. Consumers are almost without exception urging more prompt deliveries and demanding fulfillment of contracts. Mill shipments of No. 27 Common Iron now appear to be firm at a minimum of 2.40¢, Chicago, with Steel Sheets standing at 2.50¢ and Galvanized Sheets 75 and 10 and 5 % off. Sheet Copper is quoted at 14¢ base in large lots, with concessions to best buyers. Small lots of No. 27 Common Black Sheets from stock are unchanged at 2.50¢ @ 2.60¢, and Galvanized Sheets 75 and 5 % to 75 and 10 %.

Merchant Steel.—Some excellent orders have been booked by manufacturers' agents during the week, but the trade now is running a little more into specialties required by makers of the smaller lines of agricultural implementations. Specifications are going forward satisfactorily. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 1.50¢ @ 1.60¢; Smooth Finished Tire, 1.50¢ @ 1.60¢; Open Hearth Spring Steel, 1.75¢ @ 1.80¢; Bessemer Machinery, 1.40¢ @ 1.45¢; Bessemer Tire, 1.35¢ @ 1.40¢; Ordinary Tool Steel, 5½¢ @ 7¢; Specials, 10½¢ and upward.

Billets and Rods.—Although inquiries for Billets are being received for good quantities buyers are slow to close. Quotations here have been modified in consequence of the lower prices by Eastern manufacturers and may now be put at \$17.75 @ \$18. A considerable demand exists for Wire Rods, on which prices are also somewhat lower, say \$24.50 @ \$25.

Rails and Track Supplies.—A dull week is noted in the annals of the local Steel Rail trade. Quotations are continued as follows: Standard Rails, \$25 @ \$27; Steel Splice Bars, 1.25¢ @ 1.35¢; Track Bolts, with Nuts, 2.10¢ @ 2.20¢; Spikes, 1.65¢ @ 1.75¢; Links and Pins, 1.65¢ @ 1.70¢.

Old Rails and Car Wheels.—Quotations on Old Iron Rails are continued at \$11 @ \$11.25, but buyers seem inclined to keep out of the market until holders are more reasonable in their views. A little business is doing in Old Steel Rails at \$7.50 for short pieces and \$10 @ \$11 for long lengths of selected Rails. Old Car Wheels are quiet at \$10 @ \$10.50.

Scrap.—Inquiries for Old Material are better than they have been, but sales are confined to moderate quantities only. Dealers quote the following selling prices per net ton: Railroad Forge, \$9.50 @ \$10; Dealers' Forge, \$8.50 @ \$9; No. 1 Mill, \$7.50; Pipes and Flues, \$6.50; Axles, \$13 @ \$13.50; Heavy Cast, \$7 @ \$7.50; Stove Plates, \$5 @ \$5.50; Cast Borings, \$3.75; Wrought Turnings, \$5.25; Axle Turnings, \$6.50; Fish Plates, \$10.50 @ \$11; Horseshoes, \$9; Mixed Steel, gross

ton. \$5.50; Heavy Melting Steel Scrap, \$7 @ \$7.50.

Metals—Copper is moving upward, and carload lots of Lake are now quoted at 9½¢. Sellers of casting Copper are not making a standing quotation, but the last price named was 9½¢. Spelter is firmer, and quoted at 3 25¢ @ 3.30¢. Pig Lead still stands at 3¢, with considerable business doing, but prospects are not favorable for very much trade during the coming week.

Ernst Bocker, secretary of the Mannesmann Steel Tube Company, Limited, of Landore, South Wales, has been making this country a visit in the interests of his company, and together with D. B. Mollwaine of New York, their United States agent, spent the past week in Chicago visiting their many customers in the bicycle line. They returned to New York via Toledo, Cleveland and Buffalo very well pleased with the prospects for a large business this coming season and had the satisfaction of taking with them a number of very desirable contracts. The Manufacturers & Merchants' Warehouse Company, 10 to 24 West Water street, Chicago, will continue to represent their interests in the Western States and will continue to carry a large and well assorted stock of their Tubes.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., September 25, 1894.

The situation in Iron and Steel shows very little change since last week, but on the whole the feeling is hardly as strong as it was at that time. New business comes in slowly, and as old orders are being gradually worked off there is increased competition to secure renewals. The volume of business is in some lines fairly satisfactory, but prices are weak, and as prospects for increased supplies of raw material are more definite than the prospects for increased consumption are, the feeling is unsettled, and as already stated, prices are a little on the down grade. There is some talk of one or two good sized orders for ship work coming on the market, but at best the outlook indicates nothing more than a continuance of present conditions; that is to say, a considerably larger business than during last fall or spring, but at extremely low prices.

Pig Iron.—There is no unusual pressure of Iron on the market, although consumers recognize the fact that there are full supplies at figures recently ruling; some indeed are of opinion that they are likely to do better later on. Some very respectable sized lots of Standard Mill Irons have been taken at about \$10.50, delivered, and of No. 2 X at \$11.50 @ \$11.75, and at points such as York, Harrisburg, &c., \$10 and \$11 @ \$11.25, respectively, for similar qualities, the difference being that these points can be reached by some furnaces at about 50¢ lower rates of freight. There cannot be any material reduction from the figures now quoted for first-class Irons, but the impression is very general that the chances for a 25¢ movement are more in that direction than toward improvement. Bessemer Iron is neglected, but could be done at \$13.25 @ \$13.50, providing the right kind of an offer was made. General quotations for Phila-

delphia and nearby points are about as follows:

Bessemer.....	\$13.25 @	\$13.75
Standard No. 1 Foundry X.....	12.50 @	12.75
Standard No. 2 Foundry X.....	11.50 @	11.75
No. 2 Plain.....	10.75 @	11.00
No. 1 Soft.....	11.50 @	11.75
No. 2 Soft.....	10.75 @	11.00
Standard Gray Forge.....	10.50 @	10.75
Ordinary.....	..... @	10.25

Muck Bars.—Nothing doing, so that prices are nominal at \$19, f.o.b., asked.

Steel Billets.—Business is extremely dull, but prices hold firmer than many seem to have expected. A few small lots for October shipment have been placed at about \$19, delivered, but for long dates \$18.75 could be done, possibly less than that on the right kind of a bid. Consumers appear to be quite indifferent, however, and unless they can secure a better demand for the product they are not likely to take many Billets at current quotations. The general idea is that prices will be lower, but the shortage is so great that makers so far have been able to keep pretty fair control of the market.

Finished Material.—In plain terms the market may be said to be in a condition of chronic weakness. The demand is less than it was some time ago, and although some of the mills claim to be running to full capacity, others find that they are less favorably situated than they were during the preceding months. Prospects for a renewal of the demand are somewhat indefinite, and it is feared that the maximum of improvement has been reached, and the balance of the year will develop unsatisfactorily. Prices are weak and irregular, and on large orders would be shaded considerably, but as there is no such demand sellers try to get as near to quoted rates as possible. There is some little inquiry from the shipyards, but the lots are not important and may not after all come this way, as Western mills are keen for business, and quote very low on anything desirable as to quantity. General quotations for small lots are about as follows:

Grooved Skelp.....	1.25¢ @	1.30¢
Standard Refined Bars.....	1.20¢ @	1.25¢
Medium quality.....	1.10¢ @	1.15¢
Tank Steel.....	1.30¢ @	1.35¢
Heavy Plates.....	1.30¢ @	1.40¢
Shell.....	1.50¢ @	1.60¢
Flange.....	1.60¢ @	1.80¢
Angles.....	1.40¢ @	1.50¢
Beams and Channels.....	1.50¢ @	1.60¢

Old Material.—The demand for good stock is very fair, and prices for such are pretty well maintained, other descriptions being dull and difficult to move. General asking prices delivered are about as follows:

Heavy Melting Steel.....	\$10.50 @	\$11.50
Light Melting Steel.....	8.00 @	8.50
No. 1 Wrought Scrap.....	10.50 @	11.50
Machinery Cast.....	9.50 @	10.00
Wrought Turnings.....	8.00 @	8.50
Cast Borings.....	6.25 @	6.75
Old Iron Rails.....	11.50 @	12.00
Old Car Wheels.....	9.50 @	10.00

The firm of E. H. Wilson & Co., the well-known dealers in Old Iron and Steel, were dissolved on September 17 by the withdrawal of A. V. Kaiser. E. H. Wilson and J. B. M. Hiron will continue under the same firm name, and at the same location, which they have occupied during the past 20 years. Mr. Kaiser continues in business on his own account at 224 South Third street, Philadelphia.

Henry Levis & Co. have removed their offices from Fourth and Locust streets to the very eligible location and premises 26 South Fifteenth street.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, September 25, 1894.

The week under review was without special features. Pig Iron has weakened still further, but prices on Finished Material have shown no change. The volume of business is considerably heavier than it has been for some months, but there has been no better ment in prices, with the exception of Pipes and Tubes, on which a firmer feeling has developed. The advance in freight rates on articles of Iron and Steel manufacture, which goes into effect on October 1, is accelerating shipments to some extent.

Pig Iron.—The tremendous production of Bessemer Pig now going on bids fair to be increased in a short time by the blowing in of Soho of the Moorhead-McCleave Company, which has been idle for about three years. Negotiations are now in progress looking to the leasing of this furnace and the deal may go through this week. While the output of Bessemer Iron is much heavier now than ever before, it is still true that there is a large consumption going on, and stocks are remarkably light. Some of the Steel plants still find some trouble in getting Iron as fast as they need it and are compelled to stop a day or two occasionally until they can stock up. There is a probability that two or three of the Valley furnaces will soon change off from Bessemer to Mill Iron. For prompt delivery Bessemer Iron is higher in price than for deliveries for balance of the year. Forge Iron is slightly weaker in price, but very little is changing hands. We quote as follows:

Neutral Gray Forge.....	\$9.85 @	\$10.00 Cash.
All-Ord. Mill.....	9.75 @	10.00 "
No. 1 Foundry.....	11.75 @	12.00 "
No. 2 Foundry.....	10.75 @	11.00 "
Bessemer.....	11.00 @	11.25 "

We note a sale of 1500 tons of Bessemer Iron for October delivery at \$11.25, Pittsburgh; also a sale of 1000 tons of Gray Forge for October delivery at \$9 90, Pittsburgh.

Billets—The local demand continues fair and the mills are well sold up into October. Consumers continue to purchase for immediate wants only, in the belief that they will be able to buy to better advantage later. Some inquiries are in the market for Steel for October delivery, and considerable tonnage is expected to change hands this week. Pittsburgh mills state that \$17, Pittsburgh, is their minimum price for Steel for close delivery. This price would probably be shaded by outside districts and for balance of the year delivery.

Ferromanganese—We note a sale of 25 tons of 80 % domestic at \$50, delivered at buyers' mill, for delivery during October.

Plates.—The general demand continues good and considerable work is in sight. Pittsburgh has taken quite a large contract for Plates for a new vessel to be built at West Bay City, Mich. Prices are reported a trifle firmer, but no actual advance has occurred. We quote as follows: Tank Steel, 1.20¢ @ 1.25¢, Shell, 1.30¢ @ 1.40¢; Flange, 1.35¢ @ 1.45¢; Fire Box, 2½¢ @ 3½¢, according to quality. For desirable orders and round lots our lower quotation on Tank Steel is slightly shaded.

Structural Material.—The heavy demand referred to several times continues, both local mills being completely filled up with orders and have been compelled to decline several orders offered which called for prompt ship-

ment. Pittsburgh took the contract for an office building in Cleveland last week, amounting to some 2000 tons. We quote as follows: Beams and Channels up to 15 inch, 1.25¢ in round lots and 1.30¢ @ 1.35¢ for ordinary business; Angles and Universal Plates are ruling at 1.15¢ @ 1.20¢, according to order, and Tees at 1.35¢.

Merchant Steel.—A slight improvement in demand is noted, but has not been reflected in prices. Some belated season contracts have come in during the past week and the outlook is somewhat improved. Prices show no material change and we quote as follows: Bessemer Machinery, 1.25¢ @ 1.30¢; Open Hearth Spring, 1.60¢ @ 1.70¢; Open Hearth Machinery, 1.40¢ @ 1.50¢; Machine Straightened Tire, 1.60¢ @ 1.65¢; Tool Steel, 5¢ @ 7¢ for ordinary grades; 11¢ @ 13¢ for extra grades.

Bars.—Shipments during the week have been fairly heavy, partly due to the increase in freight rates which goes into effect on October 1, and partly to an improved demand. Some season contracts for both Iron and Steel Bars, aggregating considerable tonnage, have recently been placed, and the large mills are pretty comfortably fixed with orders. Prices show no improvement whatever, and we continue to quote Common Iron Bars at 1¢ at mill and Soft Steel Bars at 1.05¢ at mill, with the usual extras.

Muck Bars.—We note a sale of 250 tons at \$18.75, delivered at buyer's mill. The demand continues very light.

Sheets.—The improved demand for both Black and Galvanized Sheets continues, and the outlook is very favorable. It is not improbable that a number of mills will close down within the next week or two, pending a settlement of the wages question. The improved demand, together with the prospective shut down of a number of the mills, has stiffened up prices to some extent, and we now quote No. 27 Common Iron Sheets at 2.20¢ @ 2.25¢, and No. 27 Soft Steel at 2.35¢. The demand for Galvanized Sheets is quite heavy and prices are a shade firmer. We quote at 75 and 10 % @ 75 and 5 % off, according to order.

Pipes and Tubes.—The Carnegie Natural Gas Company of Pittsburgh placed an order last week for 8 miles of 12 inch Line Pipe, two of the local mills being the successful bidders. The Midland Steel Company, Muncie, Ind., have placed an order for several miles of 8 inch Line Pipe for natural gas with the American Tube & Iron Company. The demand for Pipes and Tubes continues quite heavy, and some low quotations have been withdrawn. One of the largest mills in the country has just made a sharp advance in prices, to take effect at once, on account of their being filled with orders and also on account of the advance in freights, which goes into effect on October 1. Several other concerns are also reported as having withdrawn some low quotations.

Skelp Iron and Steel.—A slightly improved demand is noted, and prices are a shade firmer. We quote as follows: Grooved Steel Skelp, 1.05¢ @ 1.10¢; Sheared Steel Skelp, 1.15¢ @ 1.25¢; Grooved Iron Skelp, 1.25¢ @ 1.30¢; Sheared Iron Skelp, 1.35¢ @ 1.40¢, less 2 % cash in ten days.

Wire Rods.—We are advised of a sale of 1000 tons of Wire Rods, for October delivery, at a price equal to \$23.50 at maker's mill.

Wire Nails.—The demand is very fair, some good sized orders having

been received during the week from the large trade. Prices, however, show no improvement, and \$1 at mill for round lots continues to be freely shaded. The Wire Nail Manufacturers' Association is now in session in its headquarters in the German National Bank Building in this city, and it is expected that some action will be taken looking to the stoppage of the ruinous cutting in prices that has been going on for some time. The Cut Nail trade is unsatisfactory, both as regards demand and prices. We quote Cut Nails at 85¢ for the usual averages, but this price is shaded on large orders with desirable specifications.

Barb Wire.—The volume of business continues fair, and prices are fairly well maintained on the basis of \$2 @ \$2.05, Pittsburgh, for Four-Point Galvanized. Plain Wire is ruling at \$1.25, at maker's mill, in carload lots.

Connellsville Coke.—Production of Connellsville Coke continues to increase, and the output at the present time is heavier than ever before in the history of the Coke trade. Over 15,000 ovens in the Connellsville region are in blast, and production has about reached 150,000 tons per week, the shipments from the region aggregating about 1200 cars per day. Two or three contracts for Furnace Coke expire on September 30, and the probabilities are that these will be renewed on the basis of about \$1 ¢ ton. We quote Foundry Coke at \$1.05 to dealers and \$1.15 to consumers. Crushed Coke is \$1.40 to dealers and consumers, all in tons of 2000 lb, f.o.b. cars in Connellsville region.

Cincinnati.

(By Telegraph.)

Office of The Iron Age, Fifth and Main Sts. }
CINCINNATI, September 26, 1894. }

There has been less active demand for Southern Coke Iron during the week in this district, for the Iron Pipe works are out of the market, but the Southern furnaces, having sold liberally for forward delivery, are not urging stock on the market, and are indifferent about selling unless they obtain very full prices. The attempt of foundries here to buy No. 3 Foundry at less than \$7, f.o.b. Birmingham, has been unsuccessful, although some sales have been made at \$6.85. There have been considerable sales of No. 2 Foundry in the aggregate, but generally in small lots from 500 tons down to single carloads in this district. There is also a fair demand from the East for prompt shipment, in anticipation of an advance in rates of freight of about 50¢ ¢ ton for rail and water, so that all the Iron the furnaces can furnish in the early future can be sold at pretty full prices. Northern Iron is not competing to any serious extent with Southern Iron in this market; in fact, all offered is placed in the Northern district. Quotations are as follows:

Foundry.

Southern Coke, No. 1.....	\$10.25 @ \$10.75
Southern Coke, No. 2.....	9.75 @ 10.00
Southern Coke, No. 3.....	9.10 @ 9.25
Ohio Soft Stone Coal, No. 1.....	14.50 @ 15.50
Ohio Soft Stone Coal, No. 2.....	14.00 @ 14.50
Lake Superior Coke, No. 1.....	12.50 @ 13.00
Lake Superior Coke, No. 2.....	11.50 @ 12.00
Hanging Rock Charcoal, No. 1.....	16.00 @ 17.00
Hanging Rock Charcoal, No. 2.....	15.50 @ 16.00
Tennessee Charcoal, No. 1.....	13.00 @ 13.50
Tennessee Charcoal, No. 2.....	12.00 @ 12.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	16.25 @ 17.00
Lake Superior Car Wheel and Malleable.....	15.25 @ 15.75

Forge.

Gray Forge.....	8.75 @ 9.00
Mottled Coke.....	8.50 @ 8.75

St. Louis.

(By Telegraph.)

Office of The Iron Age,
Bank of Commerce Building,
St. Louis, September 26, 1894. }

Pig Iron.—The situation remains practically unchanged so far as volume of business is concerned. Prices cannot be called weak, and yet an inquiry for a few hundred tons brings out some remarkably low figures, showing a lack of confidence on the part of the makers for any early improvement in prices. Pipe manufacturers appear to be the heaviest consumers of Iron just now, although the local architectural works, stove foundries, etc., are all working full, and are taking their shipments very freely. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry.....	\$11.00 @ \$11.95
Southern Coke, No. 2 Foundry.....	10.25 @ 10.50
Southern Coke, No. 3 Foundry.....	9.75 @ 10.00
Southern Car Wheel.....	16.50 @ 17.00
Gray Forge.....	9.25 @ 9.50
Ohio Softeners.....	14.00 @ 14.50

Bar Iron.—The demand for Bars is still heavy and with a little improvement in prices the situation could be called satisfactory. Prices do not strengthen, however, and there are no present indications that any improvement will be felt for the balance of the year. In fact, contracts at to-day's prices for the balance of the year are accepted. We quote as follows: Carload lots from mill, 1.05¢ @ 1.10¢. Small lots from jobbers, 1.20¢ @ 1.25¢, according to quantity.

Barb Wire.—There is only a moderate business reported without any prospect for immediate improvement. Painted is quoted in carload lots from mill at from \$1.75 to \$1.80; Galvanized commands the usual 40¢ ¢ hundred-weight advance.

Wire Nails.—The Nail market is decidedly weak, and \$1.15 now seems to be the general quotation. Mills are accepting some very low prices, and as there cannot be any very heavy demand for the next four months it does not seem reasonable to expect any improvement in prices.

Rails and Track Supplies.—There is nothing in the way of large business in standard Rails. There are occasional sales of Light Rails, which in the aggregate make a fair showing. Standard Sections are quoted at \$26.50 @ \$27. Old Iron Rails are a trifle firmer, and \$11 is now the current asking price. A good trade is reported in Track Supplies, which we quote as follows: Splice Bars, 1.30¢; Spikes, 1.65¢ @ 1.70¢; Bolts, Square Nuts, 1.90¢; with Hexagon Nuts, 2¢; Steel Links and Pins, 1.50¢; Iron, 1.60¢.

Pig Lead.—The market is weaker than last reported and 3.05¢ is now considered a good price for this metal. Sales of Soft Missouri have been made at 2.95¢ @ 3¢, while Desilverized commands 3.05¢. There is no large business, however, and sales are mostly confined to carload lots.

Spelter.—A better demand for this metal has strengthened the market somewhat, and 3.25¢ @ 3.30¢ is now quoted. There is nothing in the way of active trading and the market is in a position to respond quickly should the demand show any improvement.

Birmingham.

BIRMINGHAM, ALA., September 24, 1894.

The week has been quiet, though still progressive rather than retrograding. A slight feeling of disappointment is noticeable, due to the fact that all expected too much from the mere settlement of the tariff question. The visible results are not meeting the general expectations in spite of newspaper talk. While there is no weakening expected, neither is there any anticipation of an advance this year, or any material change of conditions except a gradual improvement in general lines. The only cause of any decided improvement could come through speculators, and there is nothing in the market to tempt this class of buyers. The danger is in overproduction, and the question is, Will the country continue to take care of all that is now made and prospectively will be made in addition this year? The reports indicate the resumption of quite an additional furnace capacity within the next 60 or 90 days; on the other hand, careful perusal of all reports shows a very material resumption of consumers of Pig Iron in all departments all over the country. Whatever early increase of production this district will show is taken care of by orders already on the books; in fact, is made to take care of these orders. The railroads are still too poor to do much buying. The Pipe works are doing a rushing business and a large increase in capacity will probably be arranged for at the Bessemer plant. The question of freights is agitating the furnacemen here somewhat, though any material advance Eastward will be met by shipments to Eastern points via Pensacola or Mobile by sailing vessels. This has been done before and found a perfectly feasible, though somewhat slower, route, and is being seriously considered again. The proposed entrance into this district of the Birmingham & Sheffield Railroad may become quite an important factor in the freight question, as this road has or can easily reach a perfect network of Western connections, and in that way may hold Western freights to a reasonable basis, as the Gulf ports control Eastern rates.

Pig Iron.—No large sales are reported this week. Inquiries and sales are pronounced satisfactory in quantity, though almost exclusively for 100 to 500 ton lots. A few 1000-ton orders are reported. One 5000-ton order for low silicon Iron was declined, on account of undesirability to turn furnaces from their present make to this grade, as orders for Soft and Foundry Irons are still pressing heavily for immediate shipment. New sales are for three to four months; none over six months are reported. The demand is general for all grades and fits very nicely to keep all grades moving. No special sales are reported in Chicago, though surrounding territory reports fair sales at current rates. No increase is noted in stocks, reports indicate rather a slight reduction. Quick delivery is being pushed in Soft Nos. 2 and 3 Foundry and Foundry Forge especially. A very favorable indication is that no requests are being made to stop or delay shipments. This is invariably the first sign of a decline or weakening of the market.

Finished Material.—The first week of activity shows no special encouragement. Orders are small though fair in quantity. The car works, who usually furnish the large orders, are still holding back and show no disposition to

increase outputs. Demand is general for all kinds of materials. Plates and Sheets form a prominent part of the output. There is small prospect of an increase in prices this year and the outlook is pronounced uncertain.

Metal Market.

Pig Tin.—There has been a sharp reaction in prices, and the market is at present in somewhat uncertain shape. The appearances are that the unusually heavy supplies are too much for the speculative "bull" syndicate to handle and that considerable realizing has taken place. Officially no sales have been reported at less than 16.10¢ for September, 15.80¢ for October and 15.70¢ for later months. It is understood, however, that some sales were made privately at as low a price as 16¢ net cash for September delivery and that ordinary jobbing quantities went at prices remarkably close to the official quotations. Over 1600 tons have arrived here since the 1st inst. and it is estimated in some quarters that the arrivals for the entire month will be close to 2000 tons. Granting the most liberal estimates of consumption the actual receipts add about 500 tons to the stock in dealers' hands. At the close the market was somewhat stronger, with spot and September delivery at 16.20¢ net cash. Later deliveries were correspondingly up from the lowest point.

Copper.—Prices have been raised a fraction higher. Aside from this little has transpired. There are few and only small buyers, since deliveries on old contracts supply consumers' wants in a great measure. Lake Superior Ingot is now quoted at 9½¢ @ 9¼¢, with the higher rate generally asked. Electrolytic is about 9¼¢ @ 9½¢, and 9¼¢ @ 9½¢ is asked for common casting stock.

Pig Lead.—Prices have been raised a trifle, in the face of more or less adverse market conditions. Several hundred tons of common Western went at about 3.17½¢, and it seems difficult to buy now at under 3.20¢. The change is not easily explained. Nearest to an explanation is the statement that business at late prices has been unprofitable, and that producers, without any prearranged policy, are inclined to hold back. There is a degree of uncertainty about import and export business that arouses some curiosity since it may eventually be a prominent factor in the market. There are wheels within wheels in this market which may turn out something eventually.

Spelter.—No further change has taken place during the past week. Orders have been few in this market and chiefly for moderate quantities of the metal, but between purchases elsewhere and the condition of the Ore market prices remain very firm. To all accounts it is extremely difficult to buy ordinary Western brands at less than 3.50¢ landed here and up to 3.55¢ is asked. Fancy brands command about the usual premium.

Antimony.—Prices have remained almost stationary on the basis of 7½¢ for Hallett's and 9½¢ for Cookson's. Little business has been done outside of ordinary jobbing distribution.

Nickel.—Sellers' figures are about 38¢ @ 40¢ for ordinary quantities, but on attractive orders some concession would probably be made.

New York.

Office of *The Iron Age*, 98-102 Reade street, New York, September 26, 1894.

Pig Iron.—There is a fair amount of business, but low prices continue to be made by Southern furnaces. The effect of the advance in freight rates has not yet been shown. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.65 @ \$10.75 for No. 3; \$10.90 @ \$11 for No. 2 Soft, and \$11.15 @ \$11.25 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10 @ \$10.40.

Ferromanganese and Spiegeleisen. We continue unchanged our nominal quotations of \$20.50 @ \$21 for 20 % Spiegeleisen, and \$49 @ \$50 for foreign Ferromanganese, tidewater.

Billets and Rods.—Business is confined to a fair run of orders for special Billets. We quote \$18.75 @ \$19 for Billets and \$26 @ \$26.50 for Wire Rods, tidewater.

Steel Rails.—There is nothing that is new in the standard Rail trade. As yet no movement concerning 1895 business has been made. There is quite a good business in Girder Rails, which, however, are difficult to quote because bids are now generally made on the basis of a given price per running foot, including joints and spikes.

Track Material.—We quote as follows for small lots: Spikes, 1.50¢ @ 1.70¢; Fish Plates, 1.20¢ @ 1.40¢; Track Bolts, Square Nuts, 2¢ @ 2.10¢, and Hexagon Nuts, 2.10¢ @ 2.30¢, delivered.

Manufactured Iron and Steel.—One firm report having placed about 3500 tons of material in the aggregate during the past week. The most important job on which figuring is now going on is for the extension of the building of the Metropolitan Life Insurance Company. This will probably be closed in a few days. The struggle for business is very keen and very low prices are being made on all large contracts. We quote: Beams up to 15-inch, 1.35¢ @ 1.50¢ for round lots; Angles, 1.30¢ @ 1.35¢; Universal Mill Plates, 1.25¢ @ 1.35¢; Tees, 1.50¢ @ 1.60¢; Channels, 1.40¢ @ 1.50¢, on dock. Steel Plates are 1.30¢ @ 1.40¢ for Tank; 1.40¢ @ 1.50¢ for Shell; 1.60¢ @ 1.65¢ for Flange, and 1.75¢ @ 2¢ for Fire Box, and 2¢ @ 2.25¢ for Locomotive Fire Box, on dock; Refined Bars are 1.20¢ @ 1.9¢, on dock, and Common 1.10¢ @ 1.20¢; Soft Steel Bars are 1.10¢ @ 1.30¢; Scrap Axles are quotable at 1.30¢ @ 1.50¢, delivered; Steel Axles, 1.30¢ @ 1.50¢, and Links and Pins, 1.40¢ @ 1.60¢; Steel Hoops, 1.40¢ @ 1.50¢, delivered; Cotton Ties, 67¢ @ 75¢ ½ 45-lb bundle, tidewater; Machinery Steel, 1.20¢ @ 1.40¢; Toe Calk, 1.70¢ @ 1.90¢, and Sleigh Shoe, 1.55¢ @ 1.75¢, delivered.

British Metal Market.

[Special Cable Dispatch to *The Iron Age*.]

LONDON, September 26, 1894.

Pig Tin has declined to the extent of about £3 per ton. Early in the week prices were held stiffly by the syndicate, but later on realizations by other operators included followers of the syndicate as well as independent operators. Meanwhile, a fairly good business with jobbers and consumers has been done

on the decline and the demand at present is moderately active. To day's business was chiefly at £72. 7/6 @ £72. 15/ for prompts and £72. 12/6 @ £72. /15 for three months' futures.

Copper has weakened slightly in price and business has been on a smaller scale. Early in the week some stimulus to prices was given by quite good demand from consumers, firm American advices and smaller offering from the States. Each advance has been followed by a sharp reaction, indicative of more or less speculative manipulation. Merchant Bars are quoted at £41. 12/6 for prompt and £42 for three months' futures. Best selected English is about £44 @ £44. 10/.

Tin Plate has been in limited demand and the market is a shade easier. Ordinary Bessemer Cokes have been offered at 10/ and other descriptions at corresponding prices. The demand at present is chiefly for export account. Stocks at shipping ports have increased to 338,000 boxes. Swansea quotations are as follows:

Bessemer Cokes, IC.....	10/3 @ ...
Siemens Cokes, IC.....	10/6 @ ...
J. B. Steel Cokes, IC.....	10/6 @ ...
Dean Ternes, 20 x 28	22/ @ 23/
Charcoals, IC.....	11/6 @ 12/6

Pig Lead is quoted at £9. 15/ @ £9. 17/6, with a fair business passing.

Spelter meets with limited sale, and prices remain at about £15. 7/6 @ £15. 10/ for ordinary Silesian.

Financial.

Evidence of a revival in business is afforded by the recent operations of the Treasury Department, which show an almost unprecedented demand for small notes and silver dollars from all parts of the country. Especially is this the case in the West and South. A short while ago the demand for small notes was next to nothing, but at present the call on New York alone averages about \$300,000 a day. The New York Sub-Treasury has sent \$500,000 worth to New Orleans since the beginning of this week, and the Cotton States are drawing large amounts from the banks at this center, indicating that the regular business activity of the season has set in.

Moreover, the bank clearings, which are as good a gauge of trade activity as can be found, point in the same direction. Those for all the clearing houses of the country last week show an increase of about \$122,000,000, or 16 % over the corresponding week of a year ago, compared with a gain of only 9 % in the previous week. Still, as compared with the clearings of the same period in 1892, the decrease is still considerable. The progress of business reconstruction is slow, but it has undoubtedly begun, and there are sufficient encouraging signs to warrant the return of confidence which appears to be setting in.

The aggregate of gross railroad earnings so far reported for the month of September shows a decrease of 4.9 % compared with the corresponding period of last year and of 14.7 % compared with 1892. The falling off is, however, entirely in the receipts for passenger traffic, which were extraordinarily large last year on account of the World's

Fair. Freight earnings are larger than those of a year ago. Some roads will undoubtedly suffer severely from the corn crop shortage, but others, notably those in the South and in the Territories not immediately affected thereby, are expected to do an increasingly profitable business from now on. Cotton is beginning to move freely, and westbound tonnage is well up to the average for the season. East-bound rail shipments from Chicago last week were 52,427 tons, against 51,528 tons the previous week, and 48,206 tons for the corresponding week of 1893. Lake shipments last week 62,086 tons, against 58,550 tons for the previous week. Eastbound rates are, however, said to be in an unsatisfactory condition, and rumors of cuts are rife, notwithstanding the recent agreement to maintain the tariff.

The statement issued on Saturday by the Associated Banks of this city showed a satisfactory expansion of nearly \$3,000,000 in loans, the bulk of which are said to have been taken by local dealers. There was an increase of \$20,975 in the surplus reserve, the banks now holding nearly \$60,000,000 above the legal requirement, as against \$17,609,950 a year ago. The following table shows the changes, as compared with the previous week:

	Sept. 15.	Sept. 22.	Differences
Loans ..	\$495,087,100	\$497,819,400	Inc. \$2,832,300
Specie....	91,286,300	91,862,400	Inc. 576,100
Legal tenders.	115,324,000	115,094,300	Dec. 229,700
Net Deposits	586,634,400	587,922,100	Inc. 1,287,700
Circulation....	10,070,800	10,440,500	Inc. 369,700

The loan market during the week has shown slightly more activity, although time money still fails to attract much interest, owing to the abundance and cheapness of money on call and the disposition of lenders to push up quotations for long time loans. Call loans to borrowers on stocks have been made at the Stock Exchange at 1 %, and by banks and trust companies at 1½ %; in the latter cases, under the understanding that the loans will not be disturbed until an improvement in loaning rates develops. Time money is freely offered at 2 % for 60 days, 2½ % for 90 days, 3 % for four months, 5½ % for five months, 3¼ % @ 4 % for longer periods.

Mercantile paper has been only moderately active, owing to a dearth of first-class material, rather than to any subsidence in the demand. Rates are quoted 3 % @ 3¼ % for indorsed bills; 4 % @ 4½ % for high grade single names, and 4½ % upward for others. City institutions with Southern connections are said to be rediscounting considerable paper for Southern banks at 5 % @ 6 %.

Speculation on the Stock Exchange has been exceedingly dull throughout the week, and the changes in prices of stocks, except in a few cases, are of little moment. The outside investing public still holds aloof and the trading has been confined almost exclusively to the professional element. The upward rush of stocks which followed the settlement of the tariff question has been followed by a complete lull, yet the established stocks, as a rule, hold their own at about the higher level then reached. The market, in short, though very dull, is a strong and waiting one. The declaration by the Rock Island directors on Friday of a quarterly dividend of ¼ % instead of the 1 % commonly looked for was followed by a decline in the price of that stock of over five points from 65½—the figure it

reached on favorable rumors as to the larger dividend—to 60½. This fall was accompanied by a temporary weakness in the whole line of granger stocks, which receded about one point each. This loss has been partially recovered during the current week, and the grangers remain among the firmest stocks, in spite of the corn crop failure. London has been in the market as a buyer of granger stocks, St. Paul being specially favored abroad.

The bears made a raid, on Monday, on Sugar, Chicago Gas, Burlington and Rock Island, forcing them down from one to two points, a decline which was recovered later in the week. On a report that the next dividend on New York Central would be reduced, the stock sold down, on some large dealings, to 99, but recovered on assurances from headquarters that the regular quarterly dividend of 1½ % would be declared. The publication of the new plan of reorganization for the Reading road on Tuesday was followed by a decline of nearly two points in that stock, the plan of the Olcott-Earle Committee securing a far from flattering reception. The request to the holders of the stock and income bonds to pay 3 % assessment or take collateral trust bonds at par is thought to bear too heavily on the owners of these securities, and there is a strong feeling that the plan is foredoomed to failure, especially as the whole scheme is based on an assumed increasing profit in the coal trade, which is by no means a certain thing. The auction sale of Richmond Terminal securities and their purchase by the Reorganization Committee on Tuesday completed the work of that body. The stock market closed dull and strong on Wednesday.

The railroad and miscellaneous bond market has been quiet but strong under a moderate buying for investment. Reading issues were, however, decidedly weak. Government bonds have been firm, closing on Wednesday at the following prices:

	Bid.	Asked.
2's, 1891, registered.....	96	.....
4's, registered.....	114	114½
4's, coupon.....	115	115½
5's, registered.....	119½	119½
5's, coupon.....	119½	119½

Sterling exchange has been dull and firm, bills being in small supply. Actual business was done on Wednesday at \$4 85½ @ \$4 85½ for 60 days, \$4 86½ @ \$4 86½ for demand, \$4 86½ @ \$4 86½ for cables and \$4 84½ @ \$4 84½ for commercial.

Domestic exchange on New York is quoted as follows: New Orleans, commercial, 125 discount; bank, par; Savannah, buying ¾ discount, selling ½ premium; Charleston, buying at ½ discount, selling par; San Francisco, sight 12½, telegraph 15; Boston 12½ discount; Chicago, 50 discount; St. Louis, 25 discount.

The wheat market has touched the lowest point on record—namely, 58 for December, on Tuesday, on a considerable increase in the visible supply and a comparative decline in export shipments. Corn, which weakened at the close of last week, has again rallied to close to its former quotations. The price of cotton has also made a new low record, 6.15 @ 1b for October option being reached early in the current week. The market for this staple closed weak and feverish on Wednesday, owing to large offerings from the South and a depressed market in Liverpool. It is said that the Atlantic States cannot produce cotton at the present figure.

HARDWARE.

Condition of Trade.

WHILE there has been no material change in the business situation during the past week or two, there is a perceptible though not in all lines a very marked improvement in the volume of business and in the tone of increased hopefulness and confidence which characterize the trade. Manufacturers and jobbing houses generally report the demand, while not up to that of 1892, as being considerably larger than last year, and it is regarded as an encouraging sign that Tools, Builders' Hardware and articles connected with the machinery and supply trades are moving more freely than for a long time. Travelers who are out are sending in frequent orders, which indicate, in the diversity of goods and moderate quantities purchased, the comparatively depleted stocks of both retailers and jobbers and the closeness and care with which both classes of trade are purchasing. Our advices from retail merchants show that they are doing a better business than for some time, and are generally anticipating a fair though not heavy trade in the near future. Prices are without important change and fail to show any general improvement. In the present condition of the iron market and of general business this is not surprising. There is an evident disposition on the part of prominent jobbing houses to cut prices pretty freely, and a good many comparatively low prices are made by them. Financial conditions are satisfactory and little complaint is made in regard to collections.

Chicago.

(By Telegraph.)

The Northwest has had the first genuine cold snap of the season the past week. It suggested the approach of winter in such a way that jobbers expect a decided increase in the demand for seasonable goods. They have already begun to experience a little of the movement, which is now sure to develop. The volume of general business shows no special increase over previous weeks. The trade of the first half of the month, however, has shown such an increase over August that jobbers think they are doing well now if they can keep up to the pace thus set. Staple goods are moving in

somewhat better quantities, but the carload trade in Wire Nails has fallen off and Barb Wire is not doing quite as well as had been anticipated. Jobbers are considering what changes they will make in prices of Tin Plate, to take effect after October 1. The changes to be made will probably not be very radical. Heavy Hardware is holding its own well. The trade in this line has somewhat exceeded the expectation of jobbers and they are rather surprised to find it running along so far into the fall. Carriage Axles have been advanced by manufacturers from 75 and 10 per cent. to 70 and 10 per cent. An advance is also expected on Wheels. The Horseshoe trade has for some time been unsettled by offers of low priced Shoes made by new works which have started up at several points in the West. The standard makers keep up their prices, but the others appear to be making steady inroads on their trade.

St. Louis.

(By Telegraph.)

The demand for shelf goods continues to maintain the volume which has characterized it for some weeks past. Salesmen in sending in orders refer to the depleted stocks among the retail trade, and while there is some disposition to increase the size of orders now given, it is not as yet as pronounced as the jobbers would like to see it. Plain Wire and Wire Nails are weak, and some exceedingly low prices are reported; in fact some jobbers are charged with selling Nails at cost so as to facilitate the sale of other lines of Hardware. Seasonable goods continue to sell well, and as a rule prices do not show much if any change. The cold weather at present prevailing will increase the sale of Stoves and Stove furniture to a considerable extent.

Notes on Prices.

Wire Nails.—The Wire Nail market is in about the condition referred to in our last report. The demand is satisfactory, and the volume of business comes up to reasonable expectations. There is more or less irregularity in regard to price, and the tone of the market is not strong. The market price for carload lots at mill is 95 cents to \$1, the former figure being usually obtainable on fair lots, but beyond it manufacturers are unwilling to go. The New York price is \$1.20 on dock and \$1.25 to \$1.30 from store.

Chicago, by Telegraph.—The largest manufacturers are maintaining prices firmly in the endeavor to hold the

market up and not to permit general demoralization. Cuts have been made by only one or two concerns and it is expected that this week will witness some developments which will tend to restore a better feeling. Orders in this immediate locality have been light, but trade outside has been fair. Factory prices are in the vicinity of \$1.10, Chicago. Jobbers quote small lots from stock at \$1.15 and report a good demand from their customers, but few applications for carloads.

Cut Nails.—There continues to be a fair and pretty steady demand for Cut Nails, for the most part in lots of moderate size. Comparatively few very large orders have been placed. Active competition continues between some of the Western mills and those in the East for the business of the territory naturally belonging to the latter, and some low prices, when freights are taken into account, have been made for goods delivered on the seaboard. Quotations in the Eastern market remain without important change, though there is some irregularity from the cause just named as well as the active competition between the Eastern mills. The market is represented by the quotation of 90 to 95 cents for carload lots on dock, New York, usual average, while small lots from store are held at \$1.05 to \$1.10.

Chicago, by Telegraph.—This branch of business runs along from week to week with no special feature worthy of note. Orders are small but fairly numerous, and local manufacturers are satisfied with the volume of business coming in. Prices on factory lots are unchanged at 95 cents, Chicago, on 60 cent average. Jobbers quote small lots from stock at \$1.10 to \$1.15.

Barb Wire.—The Barb Wire market is rather sluggish and the fall demand has not set in with much vigor. Prices are fairly well maintained, but of late there has been some evidence of a disposition to shade quotations when necessary. Four-Point Galvanized is held at about the following prices: Pittsburgh, \$2 to \$2.05; Cleveland, \$2.05 to \$2.10; Cincinnati, Allentown, Chicago and New York, \$2.15 to \$2.25.

Chicago, by Telegraph.—Barb Wire manufacturers report that the regular fall trade has not yet started up. They expect it to come in October with a rush. Prices latterly have weakened a trifle, and jobbers are quoting small lots at \$1.90 for Painted and \$2.30 for Galvanized, with the usual allowance for carload lots.

Market Wire.—The Wire market as a whole is in an unsatisfactory condition, and comparatively low prices are prevailing. There is also a good deal of diversity in the quotations made by leading manufacturers, which justify close attention on the part of buyers to the prices at which they place orders. The condition of the market is such that very diverse prices are quoted by prominent manufacturers to those who desire comparatively small quantities, while to close buyers exceedingly low net prices are named.

Art Auger Bit.—The Adams Art Auger Bit, manufactured by Abe L. Adams, Bridgeport, Conn., an illustrated description of which is given in another column, is sold at 35 per cent. discount from the following list :

One 1-inch plain head, with choice of one shank and cutter.....	\$0.80
One Bit, with seven 1-inch cutters, outside bracket and three kinds of shanks.....	1.75
One 1-inch head, without shanks, with one cutter.....	.70
Bracket, with one outside cutter.....	.35
Extra shanks, each.....	.40
Extra 1-inch cutters, each.....	.08
Extra 1-inch scoring rings, each.....	.25

L. F. & C. Bread Knife.—Landers Frary & Clark, New Britain, Conn., are putting on the market this Knife, which was illustrated in our last issue. The Knife is sold to the retail trade at \$2 per dozen net.

The Columbia Lifter.—This article is offered by A. C. Williams, Ravenna, Ohio, and is designed for use as a stove lid lifter and for removing from ovens pans of puddings, roasts, &c. A description of the device appeared in our issue, 13th inst. The Lifter is sold to the trade at \$12 per gross net for the nickeled and \$9 per gross net for the jappaned.

The Eureka Hasp and Lock—This Lock was described in *The Iron Age*, September 13. It is put on the market by the C. C. Leader Mfg. Company, Shamokin, Pa. The lock is sold to the trade from the following list, which is subject to a discount of 40, 10 and 5 per cent., terms 30 days, or 2 per cent. for cash in ten days:

Inches.....	3	4 1-2	6	8	10
Jappaned.....	\$4.50	\$4.60	\$4.75	\$4.90	\$5.10
Nickel plated.	7.00	7.10	7.25	7.45	7.60

Refrigerator Door Fastener and Lock.—An illustrated description of this device was given in our last issue. The Fastener is manufactured by P. J. Conroy & Co., Paschall P. O., Philadelphia, Pa. It is sold to the trade from the following list, subject to a discount of 40 per cent.

	Ornamental brass.	Highly polished brass.	Nickel plated brass.
	Per doz.	Per doz.	Per doz.
No. 103..	\$12.00	\$14.00	\$15.00
" 104..	9.00	10.00	11.00
" 105..	7.50	8.00	9.00

Sensible Mincing Knives.—A description of these Knives, which are manufactured by N. R. Streeter & Co., Groton, N. Y., New York office with W. H. Jacobus, 90 Chambers street,

was given in our issue, 13th inst. The following are the list prices on the Mincing Knives, the prices being subject to a discount of 40 per cent. to the trade:

No.	Per dozen.
10. Single bladed.....	\$1.50
20. Two ".....	2.50
40. Four ".....	2.50
60. Six ".....	3.00

Tire Bolts—An advance has been made in the prices of Tire Bolts, the new discounts being as follows:

	Per cent.
Norway Philadelphia.....	75 and 10
Eagle Philadelphia.....	80 and 10
Bay State, Eclipse, Empire, &c.....	70 and 10

Glass.—The principal feature of the Window Glass market during the past week is the further decline in quotations from factories. This decline does not appear to be restricted to any particular locality, as it is reported that quotations have been made in New York, Pittsburgh and Chicago of 85 and 20 per cent. discount for single and 90 per cent. discount for double strength Glass. These quotations are for large quantities of Glass, and do not apply to prices made by jobbers to retailers. There appears to be a disposition on the part of jobbers to realize what profit they can on the business they are doing, rather than to decrease prices in proportion to the lower quotations of manufacturers. It is understood that jobbers as a rule anticipate lower prices when all of the factories are in operation, and are not anticipating their wants to any great extent. Demand has therefore dropped off, as there is no apparent reason to anticipate a scarcity of Glass. It is reported that 556 pots, or their equivalent, are now in operation, representing about one-third of the capacity of the country. The demand for Plate Glass continues fair with no change in prices.

Hardware Organizations.

Swiss Hardware Club.—From a correspondent in Zurich, Switzerland, we have the following advices in regard to the Swiss Hardware Club recently organized :

Our Swiss Hardware Club is going on well. Every week brings new demands for admission, so we will in a short time include nearly all the Hardware merchants and a good part of the manufacturers in Switzerland. The last meeting had to judge a merchant who sold a carload of Nails to farmers' alliances. He asked to be fined instead of excluded. The club inflicted the penalty of a large fine, which was paid. Since then the alliances have not been able to procure Nails, notwithstanding they have tried it in several ways. The drapers, merchants and manufacturers and dry goods merchants have also formed clubs in their lines, and the grocers will follow.

In the Hardware Club they are now moving against foreign firms visiting the consumers, and are also trying to regulate the prices of a few articles throughout the country.

Hardware Club of New York.—The continued accessions to the membership of the Hardware Club are a matter for congratulation, and indicate the steady growth of this organization. Within the past few months nearly 200

new members have become identified with the club and accessions are constantly being received. The attractiveness of the rooms, the excellence of the *cuisine*, the large number of Hardwaremen daily attending the club, the frequent presence of merchants and manufacturers from other cities, are indications of the hold it is getting on the trade and the favor with which it is regarded. Notwithstanding the material increase in the membership the dining room in even the busiest hour of the day is not crowded, there being always available tables for newcomers, while the service is prompt and in every way satisfactory. The following are the names of members recently elected, there being a number of other propositions for membership which will be acted on in due course :

PARK BENJAMIN,
203 Broadway, New York.
HOWARD M. COWPERTHWAIT,
195 Park row, New York.

JOSEPH J. DE LONG,
Tribune Building, New York.

C. L. DU VIVIER,
22 Warren street, New York.

CHARLES H. FLETCHER,
77 Murray street, New York.

JAMES H. GILES,
Tribune Building, New York.

SAMUEL A. HAINES.
Indianapolis, Ind.

W. E. LUDLAM,
Pompton Steel & Iron Company,
Pompton, N. J.

EDWARD LAMBERT LYNCH,
253 Broadway, New York.

F. E. PATTERSON,
Consolidated Steel & Wire Company, New York.

WM. M. TAYLOR,
60 Murray street, New York.

The growth of the club during the dull summer months, when so many persons are more or less out of town, is noticeable, and makes it probable that the limit of membership will be reached before very long, and that the club will have a waiting list.

Request for Price-Lists, Circulars, &c.

HACKNEY BROS., Rocky Mount, N. C., are dealers in Carriages, Wagons, Harness, Iron and Carriage Material, &c. They are also operating a factory at Wilson, N. C., where Carriages and Harness are manufactured. They advise us that they have decided to enter the Hardware field at the former location, and are accordingly making arrangements to put in a complete stock of goods. They suggest that they would be glad if the trade would send them catalogues and price-lists, with information as to best cash discounts on the various goods. These should be addressed to Rocky Mount, N. C.

BUCK BROTHERS, Millbury, Mass., whose trade-mark is the buck's head, note an increased demand for their Tools, and say dealers report that branch of their trade reviving. Buck Brothers have recently received the text of one of their awards at Chicago, in which their Tools are referred to as "Edge Tools of exceptionally good quality."

The Sportsmen's Exposition.

THE CONTEMPLATED EXHIBIT of sportsmen's goods next spring in the Madison Square Garden, New York, for one week, from May 13 to 18 inclusive, under the auspices of the Sportsmen's Exhibition Association, seems to be making appreciable progress, and we learn from inquiry made of the leading houses in different lines that the enterprise has their cordial support.

Most of the preliminary details have already been referred to in these columns. The principal reason justifying such an effort is the interesting of not only the increasing number of persons who more and more are realizing the benefits derived from out of door recreations, but the desire to stimulate and educate many more who have not fully recognized the value of invigorating and recuperating their energies by means of athletic sports and outdoor life. All the interest thus awakened naturally develops a larger demand for goods, and those who shoot, trap, fish, climb mountains, ride Bicycles, &c., will find in such an exhibition many things new and suggestive.

The proposed exhibition will be international in its character, and sufficient time has been allowed to make adequate preparations and to assemble as completely as possible all that the sportsman cares for under one roof.

The place for the exposition is admirably chosen, being conveniently accessible to a population of nearly 4,000,000 people within a radius of 5 to 10 miles. There will doubtless be much friendly rivalry among competitors as to the arrangement and setting of special and attractive exhibits, which will combine both originality and practicability. Already there have been suggestions of some unique features by responsible houses which, if realized, will add much to its attractiveness. It is significant of the feeling in the trade that among the letters received in regard to the matter is one from a leading house in the West who deal largely in camping outfits, saying that all they know of the enterprise is what they have noted in the papers, but they wish to be put down for space in their class and asked further information.

Fairs and expositions have grown so bulky and unwieldy that the visitor is both wearied and bewildered by a mass of exhibits, much of which he has no interest in. By specializing and confining such exhibitions to lines of a kindred nature much better results can often be secured. It is intended to include in the list Fire Arms, Ammunition, Sporting Sundries, Fishing Tackle of all kinds, Boats, Canoes, &c., Camping Outfits, Athletic Goods, Kennel Supplies, Zoology and Taxidermy, Cameras and Photographic Supplies, Saddles and Bridles, Sportsmen's Art and Literature, Trophies and Loan Collections, &c., which together constitute a large, varied and very attractive field.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Wheelbarrows.

An Iowa Hardware merchant, referring to the difficulty experienced by our Illinois correspondent in setting up Grindstone Frames and Washing Machines, remarks:

Well, he is right in the matter, but did he ever put up Wheelbarrows that came knocked down? Of course he has, and so have I; but instead of the improvement in the interchangeability of parts which is expected in goods made by machinery, the bolt holes do not match at all. We recently received some Barrows and got them together after using blocks and tackle, and by boring new holes for nearly every bolt. It required about two hours' labor on each Barrow of myself and clerk. As we only make a profit of about 25 cents on each Barrow and spend 50 cents' worth of time in setting them up, it is a question who is going to pay our loss of \$3 on each dozen of Barrows.

Net Prices.

The article in a recent issue in regard to net prices, as made by a prominent Chicago house, has called out the following reply from a retail merchant in Illinois. It will be seen that writing from the retailer's standpoint he does not regard with favor the tendency toward the use of net prices which is perceptible in the trade, many leading jobbing houses doing what they can to promote it. It is not unlikely that our correspondent represents the feeling of many retail merchants:

I beg to differ with Wells & Nellegar Co. as to the trade being in favor of net prices. I have seen most of our dealers, who denounce the net price system as being more complicated than discounts. Think of buying all the sizes of Butts, Strap Hinges, Carriage Bolts, Augers and Bits, Screws, Chisels, Files, Drill Bits, Wrought Goods, Bright Wire Goods, Granite Ware, Padlocks, Planes, Tacks, Chains, Stamped Ware, &c., at net prices. Great Scott! where would we be at? When a drummer calls on us and quotes Strap Hinges at 70 per cent. we know where we are at, but with a net price for each size we don't. It's certainly easier for the drummer to use the discount and must necessarily be for the buyer.

I think the jobbers' main reason for billing at net prices is that they can add from 5 to 10 per cent. to many articles without being caught at it, as the average retailer will not look up lists and figure discounts. I have caught them at it and have given very little trade to several houses who were determined to bill at net prices.

RETAILER.

Mounted Grindstones.

We have received the following communication from the Cleveland Stone Company, Cleveland, Ohio, referring to a letter published in this department:

We noticed in *The Iron Age* of August 30 a letter from a Hardware merchant in Illinois referring to his experience with Mounted Grindstones. We appreciate what he says, and we believe without a doubt that the concern

he is connected with has been purchasing some cheap Grindstone, as there are a number of brands floating around the country to which his remarks will apply. We have yet to hear complaint of this nature from any of our customers with regard to goods that we supply. We take extra care in fitting our Mounted Grindstones, and are certain that all fit perfectly before being shipped from our works. We will guarantee that our Grindstones can be put together without any difficulty.

Aniline Ink in Labels.

A prominent Ohio Hardware firm seriously object to the use of aniline ink applied with rubber stamps for labeling goods, as will be seen from the following communication:

We wish to enter our solemn protest against the custom of some manufacturers in labeling their goods with aniline ink and a rubber stamp. This ink, especially in the purple, which is a favorite color with them, fades out very rapidly, and the result is considerable inconvenience to the dealer.

The Outlook.

The improved condition of business and the prospect for a good trade during the next few months are referred to in the following communication from a representative Hardwareman in Ohio:

We think we notice a steady improvement in Hardware and a general better feeling than has prevailed for months. We feel that this applies, too, to all lines of trade, and while not looking for anything startling in the way of an increase, we do look for a fair adjustment of prices, a more liberal buying of goods, freer collections and generally better times. Stocks are extremely low and for that reason in better shape than in years before, for whatever cause reduces a stock also cleans it up and takes away much that was unsalable. People are ready to buy and need the goods, and a good class of goods will be sold. Buyer and seller have both held off for so long that of a necessity the coming season must be a good one.

The following letter from a well-known Hardware house in Iowa will also be of interest:

In regard to trade we have to say that there is a great improvement in trade for the past six weeks, and we look for some nice business for the coming fall. After the protracted drought, which was of about 12 weeks' duration, which dried up everything, we are having some very nice and frequent rains, which is bringing out the grass as in spring, and there is every prospect of good pasturage for the fall and early winter, which will save the farmer and feeder much feed, which in return will have its effect on trade. In our opinion confidence has been restored generally, and we look for better if not good times again.

LANE BROS., Poughkeepsie, N. Y., John H. Graham & Co., 113 Chambers street this city, agents, are now tinning their Measuring Faucets, which formerly were japanned. While this enhances their value, no advance in price will be made.

Progress of the German Razor Industry.

VIATOR.

AN ARTICLE which we published a few weeks ago in regard to the German Razor industry and its successful competition with English manufactures has evidently made an impression on our English readers. It has been reprinted by the London *Iron-monger* and the Sheffield *Independent*, and editorially commented upon by these journals. What is more significant, it has called out a number of expressions from Razor manufacturers and workmen in which the subject is fully discussed in its various bearings. While the editors of the journals referred to above have treated the matter fairly and have given warning to the English makers in words so emphatic that they cannot be misunderstood, some of their correspondents are unwilling to acknowledge the decadence of English Razor making and maintain strenuously the superiority of their goods over those made in Germany. In the letters and interviews published by our contemporaries the following concessions are made, which are the more significant as coming from parties all of whose sympathies are with the English manufacturers:

1. That English Razor workmen are opposed to labor saving machinery.
2. That English forged Razors are sent to Germany to be hollow ground.
3. That high grade German Razors command a higher price than the English high grade.
4. That German hollow grinders excel the English.
5. That German workmen are progressive and intelligent.
6. That England has lost control of the Razor market of the world.
7. That the English labor unions operate against the English manufacturer.
8. That energetic measures must be adopted to meet the German competition.

It remains to be seen whether English manufacturers and workmen will heed the warning sounded and revise their methods with a view to recovering the ground which they have already lost, and to keep other markets from slipping away from them.

Victor Sporting Goods.

THE OVERMAN WHEEL COMPANY, Chicopee, Mass., are now issuing an advance catalogue of Victor sporting goods of their own manufacture. In their announcement they assure the public and the trade that their trade-mark on an article will be a guarantee that it is as good as they can make it. Eventually they will make a complete line, the catalogue showing what articles are now ready for shipment. Among the goods now offered are Baseballs, Ball Bats, Tennis Rackets, Racket Presses and Cases, Tennis Balls, Footballs, Mitts and Gloves in 14 patterns, together with a line of knit goods. They are taking hold of this new department vigorously and with enterprise. Their

various branches under their own management in Boston, New York, Philadelphia, Chicago, Detroit, Denver, San Francisco, Los Angeles and Portland, Ore., afford them an excellent opportunity for introducing a new line.

How I was Cured of a Big Head.

A Salesman's Narrative.

BY AMBROSE.

WHEN I was in the agricultural supply business two or three years I knew it all—the proprietor of the business and fellows who had grown gray in the service could give me no pointers. I had the big head. You all know how it is, boys; most of you have been there. I was just at that age when I thought myself “just fit to kill” and knew all branches of the business, especially about “drumming” the trade. I used to see our traveling men lying around the store, when they ran in to get posted up; noticed they were smoking good cigars, looked sleek and free from sin, but growling occasionally at hard luck, which I imagined was only a bluff to keep good men like myself off the road. I had visions of rides in palace cars, buggies, steamboats, elegant hotels, customers waiting in the doorway with open arms, all smiles, with orders as large as the circulation of *The Iron Age*, all ready for you and the house paying all expenses.

YOUNG AND FRESH.

Well, I pestered the “Boss” hard and persistently to let me go out, but he knew I was too young and fresh to be any good; but I bothered him so much, to get rid of me he planned a nice little soak for me that was a crusher. So one morning he said: “We have decided to put you on the road. You are a clever young fellow and should have a chance to spread yourself. Now, where would you like to travel?” “Anywhere,” I answered promptly; “I don’t care. I can sell goods anywhere.” “All right. Fetch me the map of New England. There,” said he, running his finger around on the skate-like projection of Cape Cod, Mass., “that’s a territory that is very little worked in our line. We have nobody covering it. As far as I know, it must be a beautiful agricultural district. You can work it up and have it all to yourself and go there just as often as you please; so get ready to start Monday morning, and God bless you.” Oh, wasn’t I feeling jubilant? I swelled out like a pouter pigeon—told the boys around the store they were “Jays.” “Not in it,” “N. G.,” &c.

SHORT ON HAYSEED.

I immediately went out and bought a couple of the largest cigars I could, for, of course, I could not be a drummer unless I smoked, so I tried hard to learn and got as sick as a sick horse before night. I ran over the whole stock of goods that week, gave the shipper a hum to look out sharp

for my orders and if necessary get a striker; told the stock man to order up more saw horses and wheelbarrows and discussed with our seedsmen the possibility of getting short on hayseed and cranberry vines. Monday morning, bright and early, I struck out for Provincetown via the small screw steamer “Longfellow,” the “seasickest” boat on the coast of North America. Have you ever been down on the end of the Cape? No. Well, it is impossible for you to understand what a “fat” territory I was assigned to. It is one great, flat heap of sand surrounded by salt water, where they live on the side of a heaving all winter. The only vegetation is a few scrubby oak and dwarf pine trees and a coarse, brown sedgy grass which looks like blonde whiskers on the face of Mother Earth. The Old Colony Railroad, with its single line of track and sleepers, looks not unlike some monster reptile creeping thirstily out from civilization over the hot and sandy peninsula, seemingly avoiding the bitter sea water on either side, but crawling on and on expecting to find some fresh and cooling sea in which to slake its iron thirst. It gets as far as Provincetown, curls up on the sand and expires. A few intoxicated poles supporting an æolian harp of telegraph wires operated by a raw east wind with a fog accompaniment playing “Where Is My Wandering Boy Tonight” and the “Moaning of the Tide” relieve the monotonous landscape. Siberia is thickly populated compared to it.

A CRISP \$50 BILL.

I knew no more about it than a dupe does of Hawaii. But I digress; as I say, Monday morning bright and early I struck out, loaded down with samples, including models of horse rakes, mowing machines, wheelbarrows, samples of hayseed, beans, turnips, fertilizers, a well bucket, a broom, a saw horse, two brand new yellow grips filled with linen, stationary, price books, catalogues, &c. I had a hair-cut, a clean shave, tenement collar, oil shine on, an extra plug hat (for the jobbing trade) and a crisp \$50 bill in my pocket—everything brand new. I took possession of the whole cabin, and with my numerous traps almost filled up the small saloon.

While I was tracing out my route on a map, which I spread out with a flourish on the table, two or three old-timers were sizing me up, and to my questions about the most expeditious way “to do up the Cape” one of them, in the most innocent way, volunteered information as follows: “You want to do Provincetown this afternoon, then take the horse car down to Truro and Wellfleet; then the electric line to Orleans, Chatham, Harwich through to Hyannis, and from there you can get a train every hour via the “Air Line” to Middleboro. Do you intend stopping at Nantucket? Well, take the Cape Cod ship canal, the canal will get to Nantucket as quick as it gets anywhere.” “Ain’t that so, Ed?” but “Ed” had rushed up on deck with his

fist in his mouth. I heard him explode into convulsions outside.

"Your friend is seasick," I remarked.

"Yes, he wrenches pretty bad when he heaves."

"But say, young feller, when you go to Provincetown you want to stop at —'s. It is the best hotel in town. Excuse me, please. I must look after my friend."

And those two bad drummers had another fit. I was so excited I never tumbled.

A WHEEL CURRY COMB.

Well, the first move I made when we landed was to get dinner. I went to the place recommended by my "friends," paid 50 cents to a man with rings in his ears, who looked like a retired pirate, got only a tough clam chowder, stringy lamb, sloppy tea, moldy cake and had my saw horse stolen. I hustled all over that hot, fishy, sandy old town, with its long, narrow, crooked, winding street all the afternoon, without selling a cent's worth. "Do you want any of these to-day?" I asked a storekeeper in a want-some-fish-ma'm voice, at the same time shoving horse rake model under his nose.

"What is that," he asked, eying it curiously—"a fish scraper?"

"No, no," I answered; "it's a horse rake."

"Oh, yes, I see, sort of a wheel curry comb." Great Scott! what a farming community I thought, and got out without another word. Another man, to whom I showed some Red Top grass seed, thought it was good stuff for mattresses.

"Where do I take the horse car for Truro?" I inquired of a slouchy policeman.

"Where did you come from, sonny?"

"From Boston," I answered, with as much dignity as I could assume, with a stable broom and a dung fork under either arm.

"Yer'd oughter brought one wid yer. De woods is full of dem up there." He thought I was stringing him and he left me.

THE WAY-FREIGHT CABOOSE.

There was no passenger train out until 5.30 on the morrow, so I boarded the way-freight caboose without any supper; the conductor was about to make out a freight bill for my traps, but a "J. A." cigar fixed him o. k., and about 11.45 p.m. I crawled off with all my props at Truro, the smallest town in Massachusetts, looking for a hotel and business blocks. Holy Moses of Egypt, what darkness! What desolation! I could not even hear the train when it got out of sight; nothing but the moaning sough of the wind and nearby tide. I could hardly see the shiny yellow grip in my hand. I couldn't smell—no, not even the phosphate in my sample case, which hung to me like eau de Cologne all the time; now it too deserted me. I felt as if I was the only thing left on the earth

after a deluge. I was about to make some kind of a move, when suddenly a light crept into the lonesomeness. I looked toward it and discovered a lantern with a man in it.

"Hello, there!" he said. "Has the train come through? That so? Well I've been looking for it."

"Say," said I, "where is the town here?"

"They ain't no town here. What yer pedlin'? Washboards? Ain't no store nearer than North Truro, seven miles from here, nor no place ter put up."

I bunked in (or rather out) that first night with him, an entire stranger, under an open freight shed hedged in by my traps and flanked by barrels of oil, bundles of rope and a quintal of salt fish, &c., with a Chatham fog around me for a blanket. I was sick, hungry, cold, disgusted, clean skunked and penniless, for I had buried my pocket book in the sand fearing to be robbed and I could not find the hole again. You bet, I thought hard and long that night. I commenced to tumble. I knew I was getting it in the neck from the boss and the wicked drummer, whom I dreamt I saw, not singing in Paradise, but singeing in the other place, opposite and down a flight.

HALF A DOZEN CLAM DIGGERS.

Next morning I took the 5.30 regular passenger train to Wellfleet, another beautiful agricultural town (I didn't inquire for the electric), hired a team for \$4, hustled all over Eastham, Orleans and way stations, and all I sold on the whole trip was one-half dozen Clam Diggers. I sold the Clam Hoes to a man who was digging with a shingle. He was alone. I had him corralled between myself, my samples and the rising tide. I talked so earnestly and almost fiercely on the absolute necessity of his having the best thing in the world to do that kind of work in order to live that he really thought I was off, and as his teeth were chattering with the cold, his basket floating off, the water lapping the basement of his pants, escape was impossible. He cried out, "For God's sake send me half a dozen and let me go!"

I was so rattled at having struck an order that I hunted all through my chattels for an order book without finding one, although I had a dozen with me.

"What is your address?" I asked after I found the book, but the fellow had disappeared as if into the ground, and, great Caesar! my nice new yellow grip with all my linen and mileage book went with him. He vanished so mysteriously I really thought I was dreaming. I yelled after him, cursed, swore, prayed, kicked up the sand, expecting to find him, but, alas! he is still out of sight.

IT SAVED MY LIFE.

Talk about "blues" boys, Great Scott! I never want to feel that way again. I went up to the dock at Wellfleet, intending to jump overboard, but

the tide was out and while waiting for it to come in the afternoon train for Boston hove in sight; it saved my life. I pulled myself and sample show aboard and landed home with tail feathers all down, able to wear a 6½ hat and my theories exploded. I sneaked in at the back door, threw my traps behind the elevator shaft, and crept up in the loft where the lumpers were piling up fertilizer. Oh, how I did envy them their job. I poured out my tale to a poor old ducky and took him into my confidence. I did not want any of the boys to know I got back. I would take consolation from a dog just then. I stayed out of sight like a strange cat in a garret, only showing up at meal times. I did not have the gall to get my wages from the cashier's desk. The conceit was knocked clean out of me. It was the best lesson I ever learned.

The boss met me in the doorway one evening as I was sneaking home.

"Hello A—!" said he. "Had a good week? I'll look you over in the morning. Make up your mind where you'll go next week. Lay your orders on my desk."

Well, he could not club me away from there for three years after that, and ever since, when he wants to guy me, sometime when I am hitting him up for a raise, he will turn to page 17 of his memo. (I'll remember that page as long as I live) and read: Provincetown, Truro, Chatham, Wellfleet, &c., expenses \$24.50; sales, \$1.75—½ dozen Clam Diggers. Then he winks his other eye.

Schoverling, Daly & Gales' Catalogue.

SCHOVERLING, DALY & GALES, 302 Broadway and 84 Duane street, New York, have issued a semi-annual catalogue of large size, containing 126 pages, relating to goods particularly suitable for the fall trade. It is known as Catalogue 94 B. The goods illustrated, with descriptions and prices, include Guns, Rifles, Re-loading Tools, Revolvers, Ammunition, Gun Implements, Canvas and Leather goods, Hunting Clothing, Bicycles, Lanterns, Hunting Knives and Hatchets, Calls, Decoys, Police Goods, Football Goods, Boxing Gloves, Compasses, Roller and Ice Skates, Gymnasium Clothing, Gun Locks, Springs and parts, Flask, Pouch and Belt parts, Gunsmiths' Tools, &c. The catalogue, which is accompanied by a pocket price book, is referred to by the firm as complete and accurate. We are advised that the catalogue is only sent to those furnishing references as to their being legitimate dealers in sporting goods.

Skates.

THE CATALOGUE of Ice Skates manufactured by P. Lowentrant, for whom John H. Graham & Co., 113 Chambers street, New York, are sole agents, illustrates a variety of patterns which are put on the market for this season's trade. They include Columbia, Eureka, U. S. and XXX U. S. Club Skates, U. S. Racer and U. S. Ladies' Club Skates. The advertisement of the agents will be found in another column, where illustrations are given of the U. S. and XXX U. S. Club

Skates. They suggest that inquiries be made of them for prices and terms before orders are placed.

Trade Items.

R. B. McKim has succeeded to the business at 112 Pearl street, Boston, conducted by the late H. O. Stratton as New England agent for Henry Diss-ton & Sons, Fayette R. Plumb, H. H. Barton & Son, North Bros. Mfg. Company, Diamond Mills Emery Company, Harris & Chapin, Jos. Dixon Crucible Company, and other manufacturers. Mr. McKim states that all bills since July 14, 1894, are payable to him, all bills due the estate of H. O. Stratton being also payable at his office.

THE CO-PARTNERSHIP of A. J. Phillips & Co., Fenton, Mich., which was dissolved by the recent death of Judson B. Phillips, has been succeeded by the A. J. Phillips Company, a corporation with a capital stock of \$100,000, paid in. With the exception of \$1000 the stock is all held by former members of the firm, the estate of Judson B. Phillips taking his place. The management will continue the same as for several years past. The officers of the company are E. Ashley Phillips, president; Harry J. Phillips, vice-president, and Winfield B. Phillips, secretary, treasurer and manager.

ROGER B. McMULLEN & Co., formerly at 64 Ohio street, Chicago, have removed to 139 Lake street, securing a much more convenient location for the transaction of their business, which is the sale of Bicycle supplies. They have a storeroom on the ground floor 175 feet deep, and use in connection with it two of the upper stories. An elevator has been put in to facilitate the handling of goods. A good alley in the rear affords excellent facilities for receiving and shipping. They are general sales agents for the Union Drop Forge Company of Chicago; Garford Mfg. Company of Elyria, Ohio; Indianapolis Chain & Stamping Company of Indianapolis, Ind.; Hartford Rubber Works Company of Hartford, Conn.; C. J. Smith & Sons' Company of Milwaukee, Wis.; Hunt Mfg. Company of Westboro, Mass.; and are agents for the Shelby Steel Tube Company of Shelby, Ohio, and Spaulding, Jennings & Co. of Jersey City, N. J. They will carry a stock of goods for promptly supplying their customers.

THE BUERK HARDWARE COMPANY have removed to 134 Lake street, Chicago, where they have secured increased facilities for handling Hardware, Cutlery and Tools. They have just added a complete line of locksmiths' and bell hangers' supplies and material, such as Key Blanks, Bells, Gongs, Electric Bells, Batteries, Push Buttons, Wires, Speaking Tube, Elbows, Mouth Pieces, &c. Associated with them are F. D. Earll and J. J. Wierschem, who have had 15 years experience in the locksmithing and bell hanging trades, and are consequently well fitted to handle this branch of the business. A complete catalogue is now being compiled, which will very shortly be ready for distribution. It is the intention of the company to vigorously push this new department, as will be seen from these preparations.

S. A. HAINES, well and favorably known to the Hardware trade throughout the country, has been engaged as the representative of the Irwin Auger Bit Company of Wilmington, Ohio. Mr. Haines will push the sale of their goods to the jobbing trade.

THE UPSON & HART COMPANY, Unionville, Conn., manufacturers of solid steel Knives and Forks, have added to their departments the manu-

facture of German and nickel silver flatware in Knives, Forks and Spoons. They are also manufacturers of sterling silver plated Knives, Forks, Child's Knives, Fruit Knives, Nut Picks, Nut Cracks and Carver Knives and Forks.

THE UNION SHOW CASE COMPANY of Chicago report that they are meeting with much encouragement in the introduction of their Dempsey patent display Cutlery Case. It is referred to as particularly commended by those who have little time to attend to keeping a Cutlery display in order. By the use of this Case the stock is not liable to be so disarranged that it is not in good condition for a succeeding customer to see the different patterns to advantage. The attractiveness of the display forms no little part in making sales of Cutlery. It must be admitted that people generally purchase Cutlery because there is something about it which strikes the fancy, and not because it is imperatively needed. A good setting for the samples to be shown is therefore almost a requirement of the retail trade in Pocket Knives and Razors. The Case should, of course, be set where it will be most likely to catch the eye of every customer. The Union Show Case Company would be pleased to answer letters of inquiry as to prices and styles.

THE NICKEL SILVER FLATWARE COMPANY of Unionville, Conn., are manufacturing a line of tin plated Spoons, Forks and Knives, and will soon establish agencies in New York City and Chicago.

HORTON MFG. COMPANY, Fort Wayne, Ind., have appointed C. M. Avery as their direct representative to the jobbing trade. The company report their works in full operation, with a fair demand for goods for early shipment. Usual orders for their line of standard patterns are having prompt attention.

BAKER FORGE COMPANY, Ellwood City, Pa., issue a circular in which they call attention to their manufactures of Wagon Hardware, &c. These goods are made, it is stated, under the personal supervision of James H. Baker. Special reference is made to their new Pole Cap, improved Single-tree Strap, Hammer Straps, solid Eye, solid Collar Box Rod, Welded Clips, &c.

NIAGARA SILVER COMPANY, Niagara Falls, N. Y., who recently established a New York headquarters at 88 Chambers street, have in quite an artistic manner covered their front show window with recessed gilt letters shaded with black, in a way that will undoubtedly arrest the attention of the observant pedestrian. All the letters are gold in color except the word silver, which, together with the figure of a tablespoon, is in silver color, contrasting in a marked way with the remaining gold letters, and tersely conveying the impression instantaneously that the production of Silver Flat Ware is a predominating feature of their business.

E. LOTHAR SCHMITZ, 92 Reade street, New York, has made Hermann Boker & Co., 101 Duane street, New York, sole agents in the United States for his new Stropping Machine, recently brought out. This device is used for stropping the ordinary Razor automatically.

CHARLES DALY of Schoverling, Daly & Gales, New York, sailed for Europe Saturday last on the "Campania" of the Cunard Line. His trip, which is of a business nature, will cover a period of six weeks or more. Among the objects of the journey will be a going over of the line of Bicycle Lamps of Powell & Hanmer, for whom the

firm are agents in America. A new line of styles of these goods is being brought out.

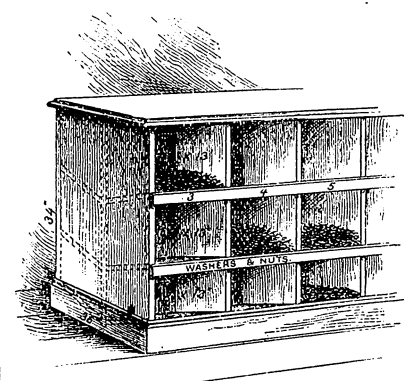
THE KEATING WHEEL COMPANY, Holyoke, Mass., have established an agency at Paris, France, and advise us that they are shipping a large number of their very light and strong Bicycles to that country.

Standard Thread for Tire Valves.

IT IS UNDERSTOOD that an effort is being made to secure the adoption of a standard thread for tire valves and pumps, so that any pump will fit any tire. Manufacturers representing about three-quarters of the American output of tires have agreed, it is stated, to adopt and use a standard diameter for tap and a standard number of threads for connections. It is expected that favorable reports will be received from other manufacturers who now have the matter under consideration.

Nail, Washer and Nut Bins.

AMONG the many convenient fixtures in the Hardware establishment of Frank Miller, Johnstown, N. Y., are the Bins for Nails, Washers and Nuts represented in the accompanying illustration. The counter



Nail, Washer and Nut Bin.

is 34 inches high, 3 feet wide and 15 feet long, made of white wood in natural hard oil finish. There are 32 openings for Nails, each of which is 12 inches high, 13 inches wide and 16 inches deep, holding a keg of Nails each. The special feature of the counter, however, is the provision for Nuts and Washers under the Nails. The openings for these goods are 8 inches high and 13 inches wide, extending back to the center of the counter. The sizes of Nails, Nuts and Washers are marked on 2-inch strips running lengthwise of the counter separating the tiers of bins. In connection with the Nail bins a chute is used for filling the bins. The chute is funnel shaped, 20 inches long and 4 inches high, made just wide enough to slide inside the bins. On the lower end of the chute are iron catches to hold it in place in the bins and at the upper end are sliding legs adjustable in length for use on the upper or lower bins. Nails are emptied from the keg into the chute by one man and slide into the bins.

New Nut Lock.

D. M. FULTON of Carlin & Fulton, Baltimore, Md., has recently been granted a patent for a Nut Lock. It consists of a bolt having a right-hand thread cut in the usual manner. Around this thread is cut a left hand shallow spiral groove of a much greater pitch, the depth of which is about one-third to one-half of the right hand thread, consequently, it is explained, the thread is not cut through or its strength materially reduced. The adjacent faces of two nuts have radial teeth of the same size and shape which serve to lock the nut when they are brought together. The holding nut or the right hand one is first screwed down tightly to its proper position, then the locking nut is screwed on the bolt in the reverse direction until it comes in contact with the holding nut. To fully lock them, the holding nut is slightly unscrewed until the locking nut's teeth fully engage with those of the holding nut. It is stated that the lost motion caused in locking depends upon the number of teeth in the nuts, in relation to the number of both threads; and that in an inch bolt it amounts to about the two hundredth part of an inch. The claim is made that the device is absolutely proof against shaking loose under any circumstances.

Price-Lists, Circulars, &c.

A NTHONY & CUSHMAN TACK COMPANY, Taunton, Mass.: Tacks, Trunk and Clout Nails, Common and Patent Brads, Chair, Basket and Cigar Box Nails, Hungarian Nails, &c. A feature of the catalogue are tables giving the contents of full cases of full and half weight Tacks, also the length of Basket, Upholsterers', Carpet, Gimp, Lace and Trimmers' Tacks of sizes from $\frac{1}{2}$ to 24 ounces. The list prices have also been condensed and arranged in a simple manner for the convenience of the trade.

BINDLEY HARDWARE COMPANY, Pittsburgh, Pa.: Fall and winter catalogue 1894-95. Illustrations, prices and descriptions are given of Oil Heaters, Gas Stoves, Coal Vases, Hods, Fire Shovels, Fire Irons, Fenders, Stove Pipe, Registers, Meat Cutters, Wringers, Roasters, Apple Parers, Lanterns, Razors, Carvers, Ammunition, Skates, &c. Special prices are made on Guns, their stock of which the company are closing out.

THE HARTFORD PLATING COMPANY, Hartford, Conn.: Silver Plated Ware. Flat Ware is shown in Shell, Tipped, Daisy, Delsarte, Hartford, Cromwell and Victoria patterns. Also Nut Picks, Pepper and Salt Boxes, Columbian Silver Knife and Jumbo Medium Fork.

TABB & JENKINS HARDWARE COMPANY, Baltimore, Md.: Gun and Sporting Goods catalogue, 1894. Illustrations and prices are given of Guns, Rifles, Ammunition, Sights, Gun Implements, Canvas and Leather Goods, Gun Material, Revolvers, &c. It is a convenient and well arranged pamphlet, which will be appreciated by the trade for whom it is intended.

C. SIDNEY SHEPARD & Co., Chicago, Ill.: Metals. A September price current is devoted to Tin Plates, Sheet Iron and Steel, Wire, Iron Rivets, Stove Bolts, Babbitt Metals, Metal Shingles, &c. On the back cover a list of seasonable goods is given.

PAGE, DENNIS & Co., 325 Broadway, New York: Illustrated catalogue, covering their several lines of goods,

prepared especially for export. The goods represented include Howe Scales, Trucks, Barrows and Letter Copying Presses, Bedford Scales, Alaska, National and American Refrigerators, Alarm Cash Drawers and Registers, Coffee Mills, Ice Cream Freezers, Fiber Goods, Lawn Mowers, &c. The company remark that they have recently made important changes and additions to their lines which are embodied in this catalogue, which they are desirous of having in the hands of their customers throughout the world, and of which they will furnish as many copies as desired.

THE MARLIN FIRE ARMS COMPANY, New Haven, Conn.: Marlin Safety Repeating Rifles, models 1891, 1893 and 1894. An illustrated catalogue of 50 pages is devoted to the Marlin Repeating Carabines, Repeating Muskets, Double Action Revolvers, Everlasting Shells, Reloading Tools, Sights, Rifles, &c. Illustrations of the component parts of the Fire Arms are also given, with prices.

BRYAN MFG. COMPANY, Bryan, Ohio: Champion Wheelbarrows. A special catalogue devoted to these goods illustrates Champion Steel Wheels, 4B Bronson Barrow, Champion, Jr., Champion No. 75, Champion Folding Steel Frame, Folding Steel Frame Garden Barrow, Mortar, Brick and Stone Barrows, and Champion Steel Tray.

CHAMPION BLOWER & FORGE COMPANY, Lancaster, Pa.: Blowers, Forges, &c. An 1894 illustrated catalogue shows Lever and Crank Blowers, Portable Forges, Blacksmith Drills, Tire Benders and Shrinkers, Screw Plates, Taps and Dies, Fan Blowers, Exhaust Fans, Steel Pressure Blowers, Disk Wheels, &c. The manufacturers state that they have entered upon their eleventh year in the manufacture of Blacksmith Tools, and that to their already large line they are making a few valuable additions.

THE BEVIN BROS. MFG. COMPANY, East Hampton, Conn., John H. Graham & Co., agents, 113 Chambers street, New York: Bells. An 1894-95 illustrated catalogue and price-list is devoted to Sleigh Bells in a large variety of forms, Shaft Bells and Chimes, Saddle Chimes, Plumes, Lighthouse and Team Bells, Hand, School and Auctioneers' Bells, Cow Bells, Gong Bells, Engine and Factory Bells.

GARDNER SASH BALANCE COMPANY, Chicago, Ill.: Sash Balances, &c. Illustrations are given of Aluminum Bronze Sash Ribbons, Sash Pulleys, Sash Locks, Ventilating Sash Bolts, Observation Door Fast, Door Bolts and Showcase Pulleys.

KEATING WHEEL COMPANY, Holyoke, Mass.: Keating Bicycles. The company are sending out interesting pamphlets relating to their wheels, in which special attention is called to the curve in the seat posts of their Bicycles, near the sprocket wheel. The company claim that the curve places the rider in the most advantageous position over his work, and not only adds to the strength and rigidity of the wheel, but that it prevents all side strain or twisting of the sprocket.

THE FAVORITE MFG. COMPANY, 342-344 Wabash avenue, Chicago, Ill.: Protector Revolver. The Revolver may be carried in the vest pocket. It is a 7-shot 32 caliber, the cylinder revolving toward the barrel instead of from left to right.

WM. T. WOOD & Co., Arlington, Mass., Joseph A. Bogardus, 167 Chambers street, New York, sole agent: Ice Tools. A descriptive catalogue illustrates Gifford Ice Elevators, Ice

Markers, Plows, Snow Ice Planes, Ice Chisels, Bars, Saws, Grapples, Hooks, Tongs, Axes, Scales, Hoisting Gins, Scrapers, &c.

It Is Reported—

Arkansas.

That W. M. Harrell, CONWAY, has been succeeded by W. M. Harrell & Co.

Colorado.

That Ferguson, Brandt & Co.'s Hardware store, at LOVELAND, was entered by burglars on the 12th inst., \$15 in cash and \$200 worth of merchandise being secured. The goods stolen were chiefly Guns, Ammunition and Cutlery.

That thieves broke into the Hardware store of Lowell & Clark, BLACK HAWK, on the 11th inst., and secured about \$150 worth of goods, consisting of Razors, Pocket Knives and Revolvers. They effected an entrance by sawing an aperture in the back door by which a bolt, the only fastening on the door, was easily reached.

Illinois.

That Rhea, Elton & Thielens, PEORIA, have been incorporated, with a capital stock of \$15,000, to deal in Farm Machinery, Vehicles, &c. The incorporators are Robert L. Rhea, Olaf Elton and A. B. Thielens.

That Jackson & Ashbaugh have just entered the Hardware business at DUNLAP, having bought out Frank Potter.

That Otis Walbaum & Co., a new firm, at ELGIN, have purchased of Reed & Heine the Hardware store formerly owned by W. K. Hoagland. Otis Walbaum, the senior member of the firm, clerked for Walter Newman for a long period, and later for Reed & Heine.

That Garretson & Baer have traded their stock of Hardware at CANTON for land near Chillicothe.

That the Hardware store of J. W. Wood, Jr., YATES CITY, was burglarized on the 16th inst.

That McBride & Palmer, FREEPORT, have disposed of their Hardware business to John P. Coffey, a Hardware merchant of Madison, S. D. Mr. Coffey has removed to FREEPORT, and will continue the business.

Indiana.

That Brimhall & Crowell, SUMMITVILLE, have sold out their business.

That Butler & Stockberger, KOCH-ESTER, have dissolved partnership.

That W. P. Maine, Stove and Hardware dealer, INDIANAPOLIS, has been succeeded by the C. Brooking Company, incorporated with a capital stock of \$15,000.

Iowa.

That C. B. Holdridge of WHITTI-MORE will remove to PERRY on October 1 and will engage in the Hardware business, opening an entirely new stock.

That Hill & Barnes of PLYMOUTH have sold their Hardware stock to A. H. Zima of FORT ATKINSON. Mr. Zima will continue the business at the old stand.

That D. Y. Kennedy and Elmer Tishel have bought Henry Kooztz's stock of Hardware and Agricultural Implements at BATAVIA.

That Louis Hanssen's store, at DAVENPORT, was visited by thieves on September 15, who helped themselves to about \$100 worth of goods.

That Ole E. Tollefsrud, Hardware merchant, KENSETT, has sold out.

That Myers & Robinson, REINBECK, have disposed of their business.

That William Newman, DES MOINES, has sold out.

That M. C. Wilcox of GRISWOLD has purchased the J. L. Anderson & Son stock of Hardware and consolidated it

with his own. The Messrs. Anderson have retired from business for the present.

Kansas.

That Luther Swenson has sold his interest in the Hardware store at LINDSBORG to his partner, J. W. Bengston, and is now engaged in buying stock for A. B. Jenkins. Mr. Bengston will continue the Hardware business under his own name.

That G. H. Dunsmore has disposed of his Hardware business at KEATS.

That E. F. Gregory, one of the first business men to build in GREENSBURG, and for years a Hardware merchant in that place, has removed to GARNETT.

Maine.

That E. H. Page of the firm of Page & Spearing, dealers in Stoves, Tinware, &c., GUILFORD, has disposed of his interest to William Webber of Chicago. Mr. Page has been in business in GUILFORD for the past 20 years, and having accumulated considerable wealth has decided to retire. Mr. Webber was formerly a resident of GUILFORD, but has been in the West for several years.

That A. P. Gould is the proprietor of a new Hardware store at AUGUSTA.

Massachusetts.

That G. N. B. Sherman will soon open a Hardware store at NEWTON HIGHLANDS.

That Trask & Putnam of PEABODY have dissolved partnership, Samuel Trask, the senior partner, withdrawing. Frank Putnam will continue the business.

That Harry O. Symonds, MARBLEHEAD, has sold out his Hardware business.

Michigan.

That Earle & Scranton Company, manufacturers' agents, DETROIT, have sold their stock and also contracts for the State of Michigan to J. B. Sperry of PORT HURON, who will continue the business at that point. H. S. Earle has bought the company's book accounts and will also settle accounts against them. Mr. Earle contemplates moving in the near future to some point in Massachusetts, where he will give more time and attention to selling the lines handled by him direct to the jobbers.

That Whitney & Mallard, HERSEY, have dissolved.

Minnesota.

That Smart & Butler's Hardware store, at AUSTIN, was destroyed by fire on the 22d inst.

Mississippi.

That the Oxford Hardware Company, recently organized at OXFORD, have bought out the Hardware business of William T. Jenkins.

Missouri.

That J. A. Potts has purchased from the Simmons Hardware Company the G. L. Ferris stock of Hardware, at MEXICO.

That J. E. Cullom of the firm of Cullom & Wolfe, Hardware and harnessmen, CLEARMONT, has sold his interest to Newton Houston.

That Weber Bros., CLEARMONT, have sold the Hardware department of their business to Geo. P. Shoptaugh.

That Gilbert & Youtsey, Hardware and Implements, GALLATIN, have sold out.

Nebraska.

That W. N. Nason has been appointed receiver for the Lobeck & Linn Hardware Company of OMAHA, at the instance of the stockholders, his bond being \$40,000.

That Bailey & Greeson, Elmwood, have sold their entire Hardware stock to J. A. Wright of NEWMAN GROVE. Mr. Wright will take possession October 1.

That Becker & Tangeman, TALMAGE, have sold out.

New Hampshire.

That A. N. Tayler & Son, COOS, have completed their New Hardware store and have commenced the removal of their stock.

That the firm of S. G. Stowell & Son, NEWPORT, have been dissolved, and the junior member of the firm, Ira Stowell, will carry on the business hereafter. S. G. Stowell has been in active business in NEWPORT for the past 24 years, first in the grocery field and later in the Hardware line.

New York.

That Glazier & Bunce, ADAMS CENTER, have sold out.

North Carolina.

That Hackney Bros., ROCKY MOUNT, are about entering the Hardware business.

That WILMINGTON has another Hardware store. The style of the new firm is Owen F. Love & Co.

Ohio.

That H. M. Brown, Hardware merchant, of BELLVILLE, has sold his business to Lewis Cassell.

That C. F. Briggs and H. W. Morrow have formed a copartnership in the Hardware business, at NEW LISBON, under the style of Briggs & Morrow.

That McClure & Hinton, Stove dealers, WOOSTER, have taken possession of their new store.

That thieves broke into the store of the Toronto Hardware Company, Toronto, on the 11th inst., and carried off a large amount of goods, including Knives, Razors, Revolvers, Scissors, &c.

That Wust & Winter, formerly of CELINA, who have been in the Hardware business for a long time, have removed to DAYTON, where they have opened a fine Hardware store in the Rowe Block.

That Chapman & Hills is the style of a new Hardware house recently organized at LORAIN.

That Geo. Shoemaker & Sons, GREENFIELD, have been succeeded by Putnam & Barrett.

That Curtis Bros., MONTPELIER, have dissolved partnership.

That Smith & Butts, Hardware merchants, TOLEDO, have dissolved.

Pennsylvania.

That J. Addison Buckwalter, ROYERSFORD, has purchased the stock and fixtures of the Hardware store of Buckwalter, Grater & Co. and will hereafter conduct the business with Mr. Grater in charge.

That K. C. Swarrey has entered the Hardware field at REEDSVILLE.

Rhode Island.

That John D. Sawyer Company, PAWTUCKET, have been running a mark-down sale which has increased their counter trade largely.

South Dakota.

That John P. Coffey of MADISON has purchased the Hardware business of McBride & Palmer, FREEPORT, ILL. He has removed to FREEPORT, where he will continue the business.

That C. Dillon, SIOUX FALLS, has been succeeded by W. C. Holmes.

Tennessee.

That the Knoxville Hardware Company, KNOXVILLE, have sold out.

That Hill & Black, KNOXVILLE, have disposed of their business.

Texas.

That the store of Melton & Spivey, dealers in Hardware and Implements, BELLEVUE, was burglarized on the 8th inst. The goods stolen were valued at \$150.

That Colbert & Pennick, Hardware merchants, of ANSON, have dissolved.

That J. P. Key, Hardware merchant, HAMILTON, has been succeeded by Scoggins & Williams.

Washington.

That W. F. Howe's Hardware store, at PORT ORCHARD, was recently damaged by fire. Loss about \$3000; insured for \$2000.

Wisconsin.

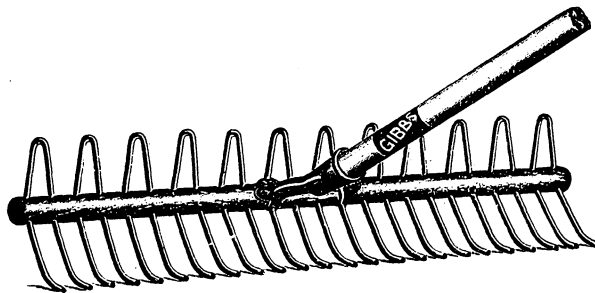
That C. Fischer of LANCASTER is putting up a fine Hardware store building. It will be two stories high, brick, 28 feet wide by 80 feet long.

That HILBERT JUNCTION has a new Hardware firm, the style of which is Reblitz & Hoffman.

The Hardware trade throughout the country are requested to report business changes, improvements and other matters of trade interest suitable for mention in this department.

Model Lawn Rake.

Gibbs Mfg. Company, Canton, Ohio, are offering the lawn rake shown herewith. The head and handle are of selected white ash, with teeth of special stiff coppered steel wire No. 9, and a socket of malleable iron designed for strength. The manufacturers remark that the rake is reversible, the single



Model Lawn Rake.

That M. K. Erdman, Hardware merchant, of QUAKERTOWN, has disposed of his stand to Howard Stoneback of ZIONSVILLE, Lehigh County. Mr. Stoneback will take possession about October 1.

That after March 1, 1895, Foote & Shear Company, wholesale Hardware dealers, SCRANTON, will occupy a new six-story building, 25 x 155 feet, now in process of erection.

That Harry A. Bressler is the successor of Riley, Bressler & Son, Hardware merchants, LYKENS.

teeth being used for taking up cut grass and the double teeth for leaves and rubbish. Also that in either position a hood is provided giving more raking capacity; and that the curve of the teeth is such as to run smoothly and rake clean without tearing the sod. It is claimed that the teeth cannot clog with grass or leaves, and that they are so placed in the head that they will never work loose. The rake is made in one size only, with 22-inch head and 24 teeth.

Marlin Repeating Rifles, Model 1894.

The Marlin Fire Arms Company, New Haven, Conn., are offering repeating rifles, model 1894, as illustrated here-

stead of being divided into a trigger and sear as in the 1889 rifle. This improvement, it is explained, does away with all play about the trigger. Figs. 2 and 3 represent a new "take down" rifle and is made in 32-20, 38-40, 44-40, 32-40 and 38-55 calibers, with all lengths and styles of barrels and maga-

ner. Complete catalogues describing these rifles are ready for distribution by the manufacturers.

L. F. & C. Putty Knives.

Landers, Frary & Clark, New Britain, Conn., are manufacturing a line of



Fig. 1.—Marlin Safety Repeating Rifle, Model 1894.

with. The model of 1889 rifle has been so improved that it is now superseded by the new model 1894, shown in Fig. 1. It is explained that the new model is practically the 1893 rifle adapted to the sizes 32-20, 38-40 and 44-40 calibers; and that the improvements in the 1893 rifle, after having been carefully tested, are now placed in the 1894 model. Referring to the most important improvements made in the rifle the manufacturers state that the firing pin is cut completely in two and that when the action is closed and locked the two

zine; straight or pistol grip. The rifle is practically the same in every respect, it is stated, as the regular rifle; also that the barrel is screwed into the receiver exactly the same as in the regular rifle and that it is perfectly solid and secure even before the cam lever (which is fitted between the barrel and receiver) wedges the union, avoiding danger resulting from neglect to perform some operation when putting the rifle together. The barrel is breeched up into a yoke, which, together with the magazine and its parts, the forearm and the

square and clipped pointed putty knives, with smoothly turned round handles. The blades are fastened into the handles by a patented process, with the advantages of a handle that fits the hand, having no rivets to come out, no projecting tangs and no corners. The blades are furnished with beech, red and black handles.

A Bamboo Bicycle.

A statement is made in the *Wheel* by their European correspondent to the ef-

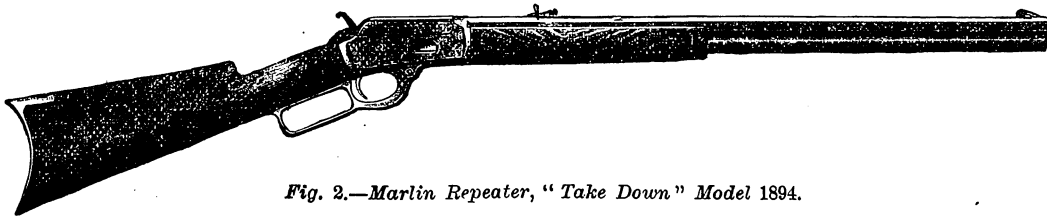


Fig. 2.—Marlin Repeater, "Take Down" Model 1894.

pieces are in a direct line. Also that the slightest motion of the finger lever draws back the firing pin and the front end of the rear piece drops down into the slot in the breech bolt where the locking bolt operates. It is stated that with the firing pin in this position it is held back positively and it is impossible to drive it forward until the breech bolt is closed and firmly locked by the locking bolt; which, it is remarked, can only happen when the whole action is fully locked. It is pointed out that if in assembling the rifle the locking bolt should be accidentally left out, the rifle cannot be fired, thus effectually preventing any accidents of this character

cam lever, form one part. It is remarked that the magazine has a knurled plug with a latch by means of which it is drawn out about 1 inch in order to bring the follower back from the receiver and allow the barrel part to be turned around. It is pointed out that the magazine is automatically held in position both when drawn out and when down as usual. The rifle may be taken apart by drawing out the magazine, throwing forward the lever to remove the breech bolt from the barrel, loosening the cam and unscrewing. The rifle can be put together as easily as it is taken apart. The manufacturers refer to the interchangeability of barrels with

fect that a bamboo cycle has been made and tested. Some little faults have been found with this experimental ma-

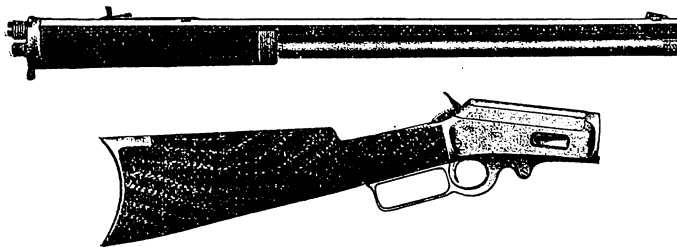


Fig. 3.—Rifle Apart Ready for Packing.

arising from carelessness or ignorance. The automatic lever catch has been placed near the front of the lever to avoid the projecting safety catch. These improvements, it is explained, do away with the safety catch, which in the 1889 rifle was projected through the lower tang. It is further explained that the locking bolt in this model does not project at all, being within the receiver at all times, which makes the rifle neat and clean, as there are no projecting catches, links or bolts to interfere with the hand. The trigger is in one piece in-

but one action as an attractive feature of this rifle. It is stated that the 38-40 and the 44-40 actions are the same, so that by purchasing one rifle and one extra barrel part, a person may have two rifles to fire these cartridges. Smooth bore barrels for these cartridges are also furnished, making a still wider variety and allowing the taxidermist to have a rifle and a 44 caliber smooth bore, which, it is remarked, is a popular size for this work. It is further stated that the 32-40 and the 38-55 rifle can also be interchanged in the same man-

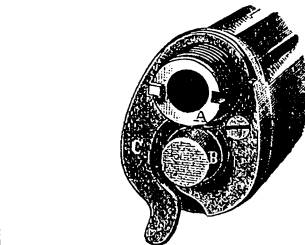


Fig. 4.—Breech End of Barrel and Magazine.

chine which the makers will endeavor to overcome. It is asserted that machines made of bamboo can be turned

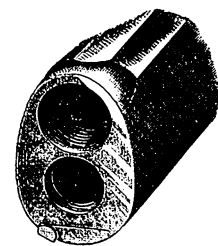


Fig. 5.—Forward End of Receiver.

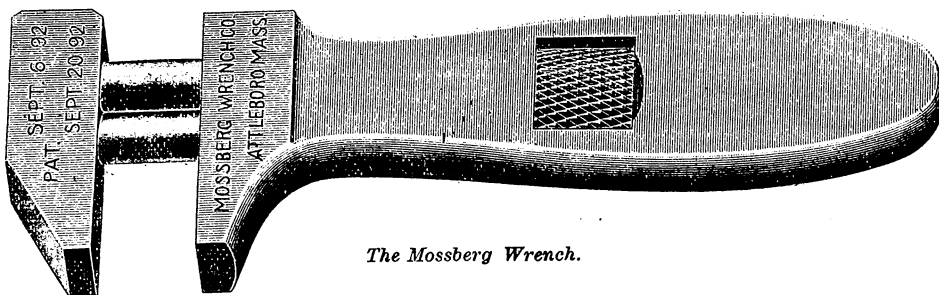
out weighing 10 to 12 pounds, which will prove serviceable and of practical use.

The Mossberg Wrench.

Mossberg Wrench Company, Attleboro, Mass., are offering a wrench with rapid adjustment, as here shown. The handle of the wrench is drop forged,

the handle and blade are tightened in a straight line. The screw B, when once properly adjusted to a razor, needs no further resetting. The razor blade is then slid in the frame holder and one end of the swing stop is passed through the opening between

ing iron here shown. The curler revolves in either direction at will, adjusting its own gearing by having the clamp button turned once around in the direction desired. The point is made by the manufacturers that the curler does its work so easily and



The Mossberg Wrench.

with drawn steel rods for the shank. This method of construction, the manufacturers remark, insures a wrench that for strength, symmetry, durability and lightness meets all requirements. The wrench is alike on both sides, measures $4\frac{1}{2}$ inches in length, opens $1\frac{1}{2}$ inches and weighs 6 ounces.

The Service Stropping Machine.

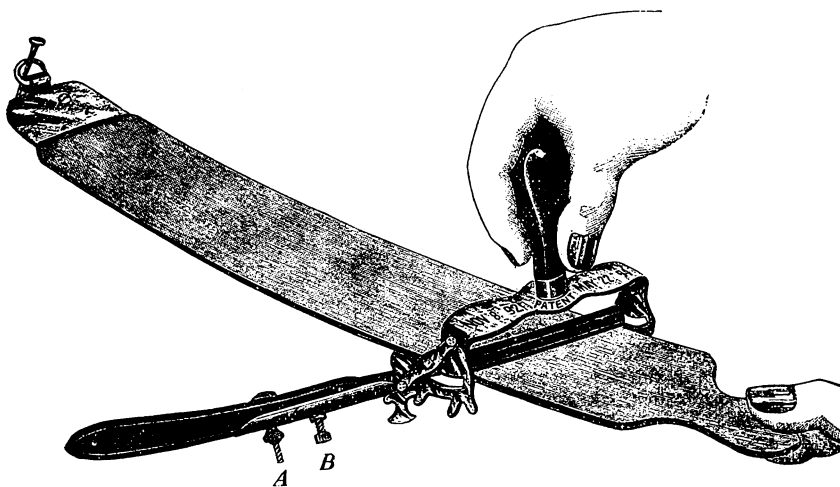
The accompanying cut represents a stropping machine for razors, put on the market by E. Lothar Schmitz, 92

the revolving slider and the cross bar. The stop is held in a horizontal position and by moving the machine forward and back over the stop the friction causes the blade to be reversed each time, automatically turning it on its back with the cutting edge pressed against the stop. It is remarked that the strokes may be short or long, quick or slow, just as desired, and that in every case the machine will work to perfection, giving the blade a fine keen edge, such as never can be produced in the ordinary way of stropping. The point is made that the stop will not be

quickly that but one heating is necessary for curling the hair, thus saving much time and annoyance incident to the old methods; and that the curler is superior to any ever placed on the market.

The L. & G. Garbage Pail.

Lalance & Grosjean Mfg. Company, 19 Cliff street, New York, are just placing on the market the L. & G. garbage pail, or cell bucket, illustrated herewith. The pail, which has an outside measurement of $12\frac{1}{2} \times 12\frac{1}{2}$ inches, and holds 3 gallons, is made of wood, with a "crystal steel" enameled lining. It is referred to as being particularly adapted for city flats and tenements, as well as for institutions of all kinds, on account of its durability, tightness, lightness and imperviousness. The lining being of enameled metal, the utensil can be easily kept clean and



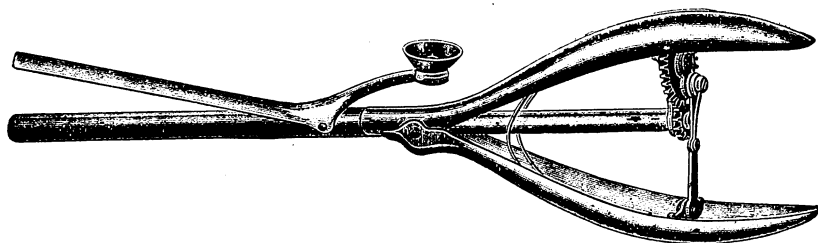
The Service Stropping Machine.

Reade street, New York. The metallic parts of the machine are nickel plated, with black enameled handle and a substantial cross bar. A nicked metallic attachment, with brass set screws A and B is used to keep the handle and blade of the razor in a straight line. In adjusting the attachment to the back of the shank and handle the hook

spoiled, as it is quite impossible to cut into the leather. The stropping machine is sold together with the stop.

The Favorite Curling Iron.

The Rotary Curling Iron Company, Ottumwa, Iowa; Heimbuecher & Web-



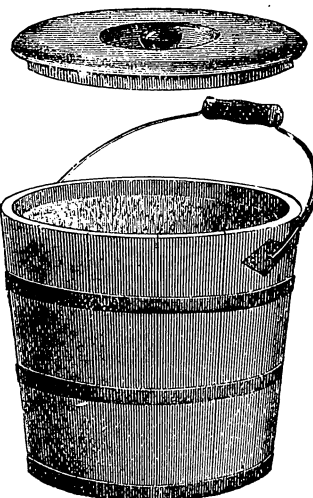
The Favorite Curling Iron.

of the screw A is passed through the handle and turned, then fastened in place by screwing the knurled nut. After this the screw B is turned until

ber, 200 American Central Building, St. Louis, Mo., agents for the South and Southwest, are offering the self revolving, self adjusting reversible curl-

sweet by rinsing out with water after use, while the fact that the "crystal steel" enamel is claimed to resist the action of acid, &c., indicates that the pail is a durable and sanitary receptacle for house waste. It is also recommended for use in prison cells.

FOREHAND ARMS COMPANY'S New Hammerless Double Gun, which was introduced last season, is being presented to the trade in substantially the same form, with rebounding locks, removable barrel and other special features, which are described in the company's catalogue.



The L. & G. Garbage Pail.

The Wernicke System of Hardware Shelving.

Illustrations are presented herewith of an ingenious and convenient style of hardware shelving and drawers manufactured by the Wernicke Company of Minneapolis, Minn. The inventor of this system of shelving recog-

will be seen on examining the end on the left. These horizontal sections are called crates by the manufacturers. The construction of a crate is shown in Fig. 2. The cross pieces separating the compartments are held in position by a board extending down the center of the top and two boards along the ends of the bottom. All crates being made in the same way, it will be seen

long in the field they have furnished quite a number of hardware stores in the Northwest with their system of shelving.

Adjustable Lamp Frame.

W. G. Creamer & Co., 96 John street, New York, are offering an adjustable lamp frame, to allow of lamps being utilized as stoves, as shown in the accompanying cut. The frames are made of iron, painted solid colors, in red, olive and dead black, and each frame is accompanied by bolts and screw driver for putting them together. The length of the legs is adjusted at the bottom when setting up the frame, so that the top of the chimney will be about $\frac{1}{4}$ inch below the top of the frame. The device is designed for use with any ordinary kerosene lamp, to utilize the heat for cooking purposes without interfering with the light. The frame is made in three sizes, Nos. 8, 12 and 16,

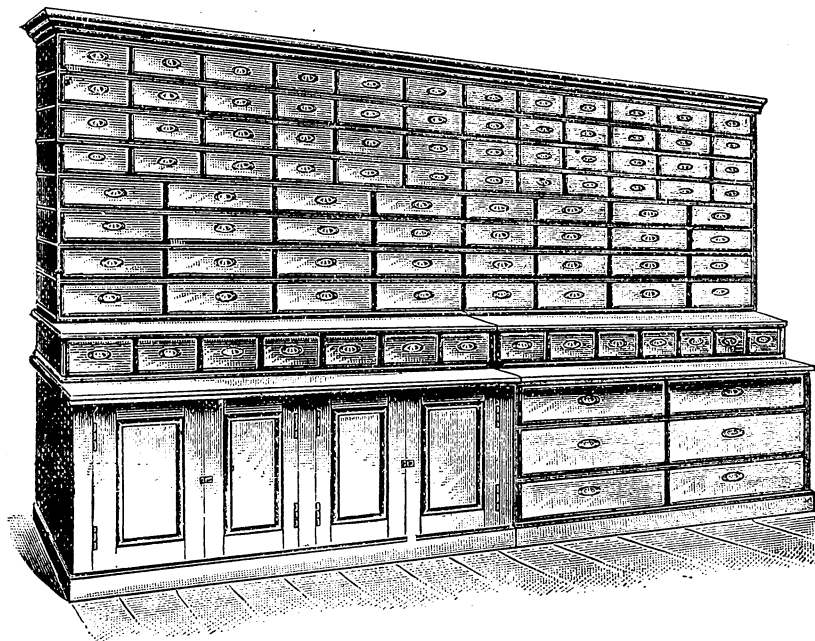


Fig. 1.—The Wernicke Hardware Shelving and Drawers.

nized the fact that hardware merchants require shelf and drawer fittings more than almost any other class of merchants owing to the character of the goods they handle. Yet it is difficult always to suit the requirements of stock or space. Shelving built rigidly in its place according to arbitrary measurements, no matter how carefully con-

that when one is placed over another the two bottom boards of the top section together with the single board of the under section will make a complete bottom for a shelf or a drawer compartment, and they are so carefully fitted that they interlock and cannot easily be upset. Fig. 3 shows a crate with the compartments supplied with drawers

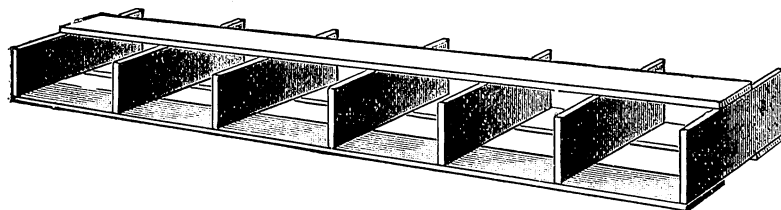


Fig. 2.—Crate.

sidered, often proves not completely adapted to the stock. Small beginners also find their enlarging trade requiring more shelf room from time to time. It is desirable to have additions harmonize with the original plan. Again, when a merchant finds it necessary to remove to another location, which will happen sometimes, the cost

Open shelving or drawers can be used as desired. The crates are interchangeable as well as the drawers, so that they do not have to be marked when taken down for removal.

The company manufacture a standard size of either oak or ash in antique finish to fill orders for immediate shipment. They take orders, however,

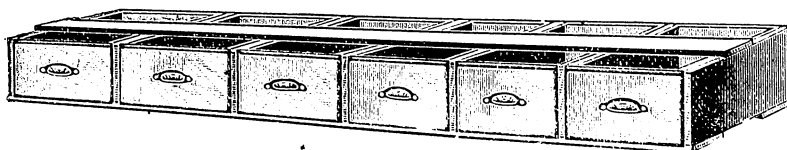
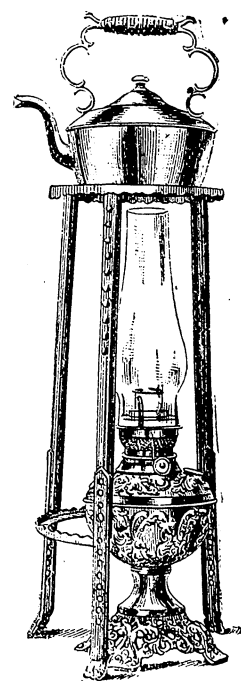


Fig. 3.—Crate Supplied With Drawers.

of the change is greatly reduced if the shelving can be easily taken down and re erected. The shelving offered by the Wernicke Company meets these requirements. Fig. 1 shows a drawer case of their design, consisting of two vertical sections. The line of division is seen down the center. This case is built in separate horizontal sections, as

for any dimension desired and with finish and trimmings to suit individual tastes. The claim is made that first cost is less than common board shelves with plain pine boxes. No carpenter being required to move or change the shelving a considerable item of expense is thus avoided subsequently. Although the company have not been



Lamp Frame Work.

adjustable in height from $8\frac{1}{2}$ to 26 inches, with tops from $5\frac{1}{2}$ to 8 inches in diameter. The No. 8 is designed especially for use in the sick room or nursery and the larger sizes for light cooking. Sad irons can be heated, it is stated, and baking of tea biscuits can be accomplished perfectly by placing a small tin oven on the top of the frame. The frames come knockdown, packed in pasteboard boxes 1 inch thick.

Aluminum Ware.

Silver & Co., 304-314 Hewes street, Brooklyn, N. Y., have begun the manufacture of a line of aluminum cooking and household utensils. They have ready for shipment four series of lipped rigid handle saucepans of 1, 2, 3 and 4 quarts capacity, ranging in price from \$5.50 to \$10.80 per dozen, net; two sizes of Berlin saucepans, with covers and handles; two sizes of tea kettles, holding $4\frac{1}{2}$ and $6\frac{1}{2}$ quarts, made entirely of aluminum, with cold handles; also, an 8 inch spider of cast aluminum and cast cold handle, together with lemon reamers, &c. They will extend the line as fast as possible.

The Adams Art Auger Bit.

Abe L. Adams, Bridgeport, Conn., is putting on the market an art auger bit, as shown in the accompanying illustrations. The bit is shown in Fig. 1, and consists of a head and three shanks. One of the shanks is for use in a brace, one for use in a machine, while the third is threaded on both ends, which permits either of the other shanks to be

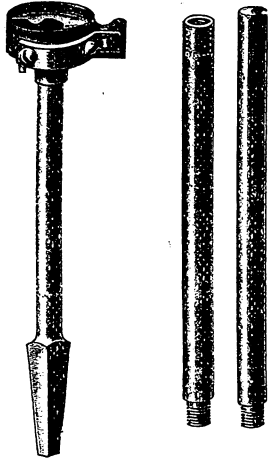


Fig. 1.—The Adams Art Auger Bit.

screwed into it, making the shank of double length. Additional shanks may be attached, thus making any desired length. The bit head, as shown in Fig. 2, is made in 13 sizes, from $\frac{1}{4}$ to $1\frac{1}{4}$ inches, and threaded so that any of the 13 heads may be used on the same shank. The bit head consists of the head which screws onto the shank, the scoring ring for cutting the circle and the cutter which comes up through the head. The scoring ring is detachable, being threaded on the inside, below the cutting edge, to fit corresponding threads on the outside of the head. The scoring ring may be removed for

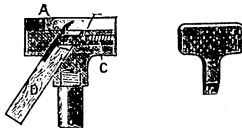


Fig. 2.—Bit Head and Screw Driver.

sharpening, or a new ring may replace one that is broken or worn out, at a small cost. The bit head and screw driver are illustrated in Fig. 2, the former in section to show its construction. The cutter is held in position in the head by the set screws A and C, while the block of wood D is placed temporarily in the slot to hold the cutter in the correct position until the set screws are tightened, after which the block of wood is removed. In adjusting the cutter it is arranged so that the scoring ring comes in contact with the wood about $\frac{1}{8}$ inch in advance of the cutter. The height of the cutter is regulated by the screw A. The screw driver is used to adjust the set screws A and C. Five cutters form a set, three of which are shown in Fig. 3. One of the cutters besides those shown in Fig. 3 is straight on the cutting edge, as in Fig. 5, while the other cutter is left soft, to be filed up to suit the user. The straight cutter is used in the head for boring holes in the same manner as with any ordinary auger bit, with the advantage, however, of having no screw point to break through and split out the wood on the under side. The form cutters shown in Fig. 3 are for making roses in art work, and with

them may be cut two small beads, a large circle and a medium circle. In Fig. 4 is shown the outside bracket and cutter, which is attached to the head by screws, as illustrated in Fig. 1. The blank cutter also shown



Fig. 3.—Form Cutters.

in Fig. 4 is left soft to be filed up to suit the user. The cutters inside the head may be changed when the bracket is on by the use of the screw driver as well as when the bracket is off. The bracket cutter is used in art work for making beads around the rose made by the scoring circle and inside cutter, as shown in Fig. 5. The bracket cutter can be used in connection with and at the same time as the straight inside cutter in Fig. 5, or with any of the form cutters shown in Fig. 3. Inlaid work of almost an infinite number of designs may also be made with the bite, consisting of circles, semicircles, crescents, &c. For cutting through veneering for this purpose the scoring ring only is used on the head. The top of two checker boards, for instance, may be made from two pieces of veneer of different colors. The circles cut from each colored veneer are saved, transferred from one to the other and glued



Fig. 4.—Outside Bracket and Cutter.

in place, thus producing the two checker boards without wasting any veneer. The advantages claimed by the manufacturer for this form of bit are as follows: That when the bit is dull it can be readily sharpened, and when any part is broken it can be replaced at a small cost; that the bit is adapted to a large range of work; that the cutters are detachable and adjustable and are readily sharpened; that it is a rapid machine bit; that as the head is threaded it can be used anywhere by changing the shank; that the different kinds of form cutters for making roses may be used in the same head, and that the bracket with its different forms of cutters adds to the scope of the work of the bit. A set consists of one head, three shanks, one outside bracket, seven cutters—five of them for the inside of the bit and two for the outside bracket—one of each being left soft to be formed up to suit the user, one screw driver and a block of



Fig. 5.—Showing Work Done by the Inside and Outside Cutters.

wood to hold the cutter while it is being fastened in the head. These are all packed in a neat box. Parts may also be bought separately. The point is emphasized that the inlaying of veneer and roses is a prominent feature of the work which may be done with the bit, and that it is peculiar only to this tool. The bit is patented in America and Canada, also in six foreign countries. Information in regard to the prices of this auger bit is given under Notes on Prices.

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Current Hardware Prices.

SEPTEMBER 26, 1894.

NOTE.—The quotations given below represent Current Hardware Prices, whether made by manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail Hardware merchants. Very small orders and broken packages often command higher prices.

The character @ is used to indicate a range of price: thus discount 50 & 10% @ 50 & 10 & 5%, signifies that the goods in question are sold at prices ranging from 50 & 10% to 50 & 10 & 5%.

Adjusters, Blind—

Domestic.....\$ dos \$8.00, 89% @ 33% @ 10%
Excelsior.....\$ dos \$10.00.....50 & 10 & 2%
North's.....\$ dos.....list net @ 10%
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—

American—

Eagle Anvils, \$ 9.....15 @ 15 & 2%
Horse shoe brand, Wrought.....9% @ 10 & 0
Moore & Barnes Mfg. Co.....3% @ 2

Imported—

Armitage Mouse Hole.....8% @ 9 & 4
A. & H., machine finished.....9% @ 10 & 4
Trenton.....9% @ 10 & 0
Peter Wright's.....9% @ 10 & 0

Anvil Vise and Drill—

Allen Anvil and Vise \$8.00.....40 & 10%
Cheney Anvil and Vise.....25%
Millers Falls Co., \$18.00.....20%
Holt's.....40 & 10 & 10%

Apple Parers—See Parers Apple, &c.

Augers and Bits—

Boring Machine Augers.....70 & 70 & 10%
Car Bits, 12-in. twist.....50%
Common Augers and Bits.....70 & 70 & 10%
Cincinnati Bell-Hangers' Bits.....30 & 10
Forstner Pat. Auger Bits.....25%
Jennings' Pattern Car Bits.....40%
Jennings' Pattern Auger Bits.....60%
A. E. Jennings & Co., No. 10, extens.....40%
Up.....40%
C. E. Jennings & Co., No. 80.....60%
O. E. Jennings & Co., Auger Bits, 7 set
8 1/2" quarters, No. 5, \$5; No. 30, \$3.50, 25%
Russell Jennings' Augers and Bits, 25 & 10%
Lewis' Patent Single twist.....15 & 10%
L'Hommedieu Car Bits.....15 & 10%
Fugh's Black.....20%
Fugh's Jennings Pattern.....30%
Snell's Bits.....60 & 60 & 10%

Bit Stock Drills—

Cleveland.....60 & 10 & 5%
Cincinnati, for wood.....40 & 10%
Cincinnati, for metal.....50 & 10%
Morse Twist Drill, 10-in. twist.....50 & 10 & 5%
New Process Twist Drill Co.....60 & 10 & 5%
Standard.....60 & 10 & 5%
Syracuse, for metal.....60 & 10 & 5%
Syracuse, for wood (wood list) 80 & 10 & 40%

Expansive Bits—

Clark's small, \$18; large, \$20.....40 & 10 & 5%
Ives' No. 4, \$20.....40 & 10 & 10%
Steer's No. 1, \$20; No. 2, \$18.....40 & 10 & 5%
Stearns' No. 2, \$48.....20%
Swan's.....40 & 10 & 10%

Gimlet Bits—

Bee.....25 & 25 & 10%
Common.....25 & 25 & 10%
Diamond.....\$ dos \$1.25.....40 & 10%
Double Cut.....40 & 10%
Hartwell's.....\$ gro. \$10.00.....40 & 10%
Douglass's.....40 & 10 & 50%
Ives.....60 & 10 & 60 & 10 & 25%
Shepardson's.....45 & 10 & 45 & 10 & 25%

Hollow Augers—

Bonney's Adjustable, \$ dos \$48.....50%
Cincinnati Adjustable.....25 & 10%
Cincinnati Standard.....25 & 10%
Douglass.....83% @ 83% @ 10%
French, Swift & Co. (Beecher).....83% @ 83% @ 10%
Ives' Expansive, each \$4.50.....50 & 5%
Stearns'.....20 & 10%
Universal Expansive, each \$4.50.....20%
Wood's, \$ dos, \$48.....25 & 10%

Ship Augers and Bits—

L'Hommedieu's.....15 & 10 & 15 & 10 & 5%
Snell's.....25 & 25 & 10%
Snell's Ship Auger Pattn Car Bits.....15 & 10 & 15 & 10 & 5%
Watrous'.....25 & 25 & 10%

Awl Hafts—See Hafts, Awl.

Awls—

Brad, Handled.....\$ gr. \$2.50 @ \$3.00
Brad, Shoulders.....\$ gr. \$1.30 @ \$1.40
Peg, Pat.....\$ gr. 35 @ 38
Peg, Should.....\$ gr. \$1.50 @ \$1.55
Scratch, Handled.....\$ gr. \$4.00 @ \$4.50
Scratch, Socket.....\$ dos. \$1.10 @ \$1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First quality, best brands.....\$6.00 @ \$6.50
First quality, other brands.....5.50 @ 6.00
Beveled add 50¢ \$ doz.

Axle Grease—See Grease, Axle.

Axles—

No. 1 Common.....3¢ @ 3 1/2¢
No. 2 Common.....4¢ @ 4 1/2¢
Nos. 7 to 14.....7¢
Nos. 15 to 28.....47%
Nos. 19 to 22.....70%
Concord Axles, loose collar.....\$ 4 1/2
Concord Axles, solid collar.....5¢ @ 5 1/2¢
Tubular Axles.....50¢

Bag Holders—See Holders, Bag.

Balances—

Caldwell, low list.....30%
Pullman.....60%
Sensible.....60%

Spring—

Spring Balances.....40 & 10 @ 50%
No. 2000 20 80
Chatillon, \$ dos.....\$0.80 0.95 1.75 net
Chatillon Straight Balances.....40 & 10 & 10%
Chatillon Circular Balances.....50 & 10%

Barb Wire—See Wire, Barb.

Bars—

Cast Steel.....\$ 2 1/2 @ 3 1/2
Iron, Steel Points.....\$ 2 1/2 @ 2 1/2

Basins, Wash—

Standard Fiberware, No. 1, 10 1/2-in., \$1.80;
12-inch, \$2.00; 18 1/2-inch, \$2.50.

Beams Scale—

Scale Beams, List Jan. 12, '82
50 & 10 @ 50 & 10 & 5%
Chatillon's No. 1.....40%
Chatillon's No. 2.....50 & 10 @ 50 & 10 & 5%
Custers'.....39%

Beaters—

Bryant's.....\$ gross \$14.00
Double (H. & R. Mfg. Co.), \$ gro. No. 0
\$12.00; No. 1, \$16.00; No. 2.....\$38.00
Dover.....\$ dos \$1.00; \$ gro. \$3.50
Dover, Ex. Family Size.....\$ dos \$1.00
Dover (Standard Co.).....\$ dos \$1.00
Duplex (Standard Co.).....\$ dos \$1.00
Duplex Extra Heavy (Standard Co.).....\$ dos \$3.50
Easy (H. & R. Mfg. Co.).....\$ gro \$12.00
Improved Acme (H. & R. Mfg. Co.).....\$ gro \$9.00
Silver & Co.....\$ gro \$4.25 @ \$4.50
Spiral.....\$ gro \$4.25 @ \$4.50
Triple (H. & R. Mfg. Co.).....\$ gro \$16.50

Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;
No. 2, \$2.....20%
Common Wrought.....60 & 10%
Kentucky Durham.....70 & 10%
Kentucky, Sargent's list.....70 & 10%
Kentucky, "Star".....20 & 10%
Texas Star.....60 & 10 @ 60 & 10 & 5%
Western, Sargent's list.....70 & 10%

Door—

Crank, Brooks'.....50 & 10 & 2%
Crank, Cone's.....20 & 10%
Crank, Cone's.....20 & 10%
Gong, Abbe's.....85 & 10%
Gong, Barton's.....40 & 10 @ 60%
Gong, Yankee.....45 & 10%
Lever, R. & E. Mfg. Co.'s.....50 & 10 & 2%
Lever, Sargent's.....60 & 10%
Lever, Taylor's Bronzed or Plated, net
Lever, Taylor's Japaned.....25 & 25 & 10%
Full, Brook's.....50 & 10 & 2%

Electric—

Bigelow & Dowse.....20 & 20 & 10%
Wollensak's.....20 & 20 & 10%

Hand—

Extra Heavy Brass.....70%
Light Brass.....70 & 10 @ 70 & 10 & 5%
Silver-Chime.....39% @ 10%
White.....70%
Globe Cone's Patent.....25 & 10 @ 35%

Miscellaneous—

Call.....45 & 50%
Farm Bells.....\$ 2 1/2 @ 3
Steel Alloy Church and School Bells.....50%
Blacksmith's.....60 & 10 @ 10 & 70%
Hand Bellows.....40 & 10 @ 50%
Molders'.....40 & 10 @ 50%

Belting, Rubber—

Common Standard.....75 & 10 @ 75 & 10 & 5%
Extra.....60 & 10 @ 75 & 10 & 5%
Standard.....70 & 10 @ 75%
N.Y.B. & P. Co., Carbon.....60 & 10 & 5%
N.Y.B. & P. Co., Double Diamond.....60%
N.Y.B. & P. Co., 1846 Para.....40 & 10%

Bench Stops—See Stops, Bench.

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender 15 @ 15 & 10%
Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters.....15%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.,
see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Cleveland Block Co., Mal. Iron.....50 & 10 @ 60 & 10%
Moore's Novelty, Mal. Iron.....50 & 50 & 5%
Saw Grin Steel Tackle Blocks 25 @ 25 & 10%
See also Machines Hoisting.

Boils—

Carriage, Machine, &c.—

Com. list June 10, '84.....80 & 10 @ 80 & 20%
Charter Oak, list Oct. 1884.....80%
Genuine Eagle, Norway, list Oct. '84.....80%
Eagle, Norway, list Oct. '84.....80 & 10 @ 80 & 15%
Phila. pattern, list Oct. 7, '84.....80%
R.B. & W., old list.....70%
Bolt Ends, list Jan. 1, 1890.....80 & 10 @ 80 & 20%
Machine, list Jan. 1, 1890.....80 & 10 @ 80 & 20%

Door and Shutter—

Cast Iron Barrel Square, &c.....75 & 10 @ 75 & 10 & 5%
Cast Iron Chain (Sargent's list).....65 & 10 @ 65 & 10 & 5%
Cast Iron Shutter Bolts 75 & 10 @ 75 & 10 & 5%
Ives' Patent Door Bolts 60 & 10 @ 60 & 10 & 10%
Wrought Barrel.....75 & 10 @ 80%
Wrt B. K. Flush Common.....60 & 10 @ 60 & 10 & 10%
Wrt Shutter, Brass Knob.....50 & 10 @ 40%
Wrt Shutter, Sargent's list.....60% @ 70%
Wrt Shutter, all iron, Stanley's 60% @ 70%
Wrought Square.....75 & 10 @ 80%
Wrt Sunk Flush, Sargent's list.....60 & 10%
Wrt Sunk Flush, Stanley's list 60 @ 60 & 10%

Stove and Plow—

Plow.....60 & 10 @ 60 & 10 & 10%
Stove.....65 @ 70 & 5%
R. B. & W., Plow.....65%

Tire—

Common, list Feb. 28, '83.....70 & 70 & 10%
American Screw Company.....80%
Norway, Phila., list Oct. 16, '84.....80%
Eagle, Phila., list Oct. 16, '84.....85%
Bay State, list Feb. 28, '83.....75%
Franklin Moore Co.....80%
Norway, Phila., list Oct. 16, '84.....85%
Eagle, Phila., list Oct. 16, '84.....85%
Eclipse, list Feb. 28, '83.....75%
Port Chester Bolt and Nut Company.....75%
Empire list Feb. 28, '83.....75%
Keystone, Philadel., list Oct. '84.....80%
Norway, Phila., list Oct. '84.....85%
R. B. & W., Philadel., list Oct. 16, '84.....85%

Borers, Tap—

Common and Ring.....20 & 10%
Clark's.....33% @ 25%
Enterprise Mfg. Co.....25%
Ives' Tap Borers.....33% @ 25%

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Letter—

Tatum's.....40

Boxes, Wagon—

Per D.....2% @

Boxes, Miter.

Spilker's Excelsior, 3 in. \$7.50, 4 in.
\$8.50, 5 in. \$13.00, 6 in. \$15.00.....20%

Braces—

NOTE.—Most Braces are sold at net prices.
Barber's.....50 & 10%
Bartholomew's.....50 & 5%
Armstrong's.....\$1.00 @ \$1.10
Davis Patent.....60 & 10%
Fray's Genuine Spofford's.....50 & 10 & 5%
Fray's Nos. 70 to 120, 81 to 123, 207 to 414
50 & 10 & 5%
Ives' New Haven Novelty.....70 & 70 & 5%
New Haven Ratchet.....60 & 5 @ 60 & 10%
Barber Ratchet.....60 & 5 @ 60 & 10%
Barber's.....60 & 5
Spofford.....60 & 5 @ 60 & 10%
P. S. & W. Co., Peck's Patent.....60%
Rose & Johnson.....50%

Brackets—

Shelf, fancy.....70 & 70 & 10%
Other makes at a wide range of prices.
Shelf, plain.....65 @ 70%
Sargent's list.....60 & 10 @ 70 & 10%
Bradley Shelf Brackets.....75%

Bright Wire Goods—See Wire.

Brollers—

Hen's Self-Inch.....8 10 9x11
Basting.....\$4.50 5.50 6.50
New Haven Odorous.....\$ dos. \$12.50
New Haven.....50%
Queen City.....33% @
Wire Goods Co.....65 & 10%

Buckets, Well and Fire—

See Pails.

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers, Butcher's.

Butts—

Cast Brass, Fast.....33% @ 10%
Cast Brass, Loose Joint.....33% @ 10%
Cast Brass, Tiebout's.....60 & 10 @ 80 & 20%
Wrought Brass.....60 & 10 @ 80 & 20%

Cast Iron—

Fast Joint, Broad.....60 & 10 @ 60 & 10 & 10%
Fast Joint Narrow.....60 & 10 @ 60 & 10 & 10%

Loose Joint.....
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns.....75 & 10
Loose Pin, Acorns.....@ 30%
Loose Pin, Acorns, Japanned.....
Loose Pin, Acorns, Japanned,
Plated Tip.....
Mayer's Hinges.....
Parliament Butts.....

Wrought Steel—

Fast Joint, Broad.....
Fast Joint, Narrow.....
Fast Joint, L. Narrow.....
Inside Blind, Light.....40 & 10 @ 50%
Inside Blind, Regular.....
Loose Joint, Broad.....
Loose Pin.....
Table Butts, Back Flaps, &c.....50 & 10 @ 50 & 10 & 5%
Bronzed Wrought Butts 50 & 10 @ 50 & 10 & 5%

Cages, Bird—

Hendryx Brass:
3000, 5000, 1100 series.....10%
1200 series.....40%
200, 300, 600 and 900 series.....40 & 10 @ 50%
Hendryx Bronze:
700, 800 series.....40 & 10 @ 50%
Hendryx Enameled.....40 & 10 @ 50%

Callipers—See Compasses.

Calks Toe—

Burke's, One Prong, Blunt.....4% @ 5%
Burke's, One Prong, Sharp.....5% @ 6%
Burke's, Two Prong, Blunt.....5% @ 6%
Burke's, Two Prong, Sharp.....6% @ 7%
Gautier, One Prong, Blunt.....5% @ 6%

Can Openers—See Openers, Can.

Cans Milk—

S. S. & Co., 6-gal. \$3.00; 8-gal., \$4.40;
10-gal., \$4.75 each.....40 & 10

Caps Oil—

Galvanized Blue Band, 1 gal., \$ dos. 22.33
Galvanized Blue Band, 5 gal., Tip-Top, \$ dos. 115.00
Galvanized Blue Band, 5 gal., Faucet, \$ dos. 25.00
Glass Oil, Friend.....\$ dos. 32.75

Caps Percussion—

Eley's B.....50 & 50
Eley's D Waterproof, Central Fire, \$1.00
Hicks & Goldmark's and Union Metallic
Cartridge Co.....\$ 1000
E. B. Grand Edge, Cent. Fire, 1-10's 47 & 50
E. B. Trimmed Edge, 1-10's.....47 & 50
F. L. Waterproof, 1-10's.....35 & 50
G. D.....50 & 50
Musket, Waterproof, 1-10's.....50 & 50
S. B. Genuine Imported.....45%

Primers—

Berdan Primers, \$1.00.....25
B. L. Caps (Sturtevant Shells) \$1.00.....25
All other Primers, \$1.20.....25

Cards—

Watson's Cotton, Wool, Horse and
File, list January 28, 1891.....

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—

B. B. Caps, Col. Ball, Swd., \$1.85 @ \$1.90
B. B. Caps, Round Ball, \$1.60 @ \$1.65
Blank Cartridges, except 22 and 32 cal.,
additional 10¢ to above discounts.
Blank Cartridges, 22 cal. \$1.75.....25
Blank Cartridges, 32 cal. \$3.50.....25
Cent. Fire, Military and Sporting 15 & 50
Cent. Fire, Pistol and R. P. 25 & 50
Primed Shells and Bullets.....15 & 50
Rim Fire Cartridges.....50 & 50
Rim Fire Military.....15 & 50

Carpet Sweepers—

See Sweepers, Carpet.

Casters—

Bed.....60 & 10 @ 60 & 10 & 10%
Plate.....60 & 10 @ 60 & 10 & 10%
Shallow Socket.....60%
Deep Socket.....60%
Giant Truck Casters.....85%
Gwinner's Common Sense.....45 & 50%
Gwinner's Hercules.....45 & 50%
Martin's Patent (Phoenix) 45 & 10 @ 50 & 10%
Payson's Anti-Friction.....70 & 70 & 10%
Payson's Truck.....60 & 60 & 10%
Socket Truck Casters.....50 & 50 & 10%
Stationary Truck Casters.....60 & 10%
Tatum's Truck.....60 & 10 @ 60 & 10%
Tucker's Patent, low list.....45%
Yale Casters, low list.....45%
Yale, Gem.....70%

Cattle Leaders—

See Leaders, Cattle.

Cement—

Victor Elastic.....5 D pails \$ 2

Chain—

American Coll. in cast lots.....\$ 1.50 1.60 1.70 1.80 1.90 2.00
\$

Chalk Lines—See Lines.**Checks, Door—**Bardsley's 20%
Unity 50%**Chisels—****Socket Framing and Firmer**Ohio Tool Co. 75¢100¢80%
P. S. & W.
Wetherby 30%
Buck Bros. 30%
Charles Buck 30%
Douglass 75¢75¢10%
Merrill 60¢100¢80%10%
L. & J. White 80¢30¢5%**Tanged and Miscellaneous**Buck Bros. 30%
Charles Buck 30%
Butchers 30%
Spear & Jacksons \$4.75 to \$5.00 to 2¢
Tanged Firmer 50¢50¢10%
L. & J. White, Tanged 25¢5%
Cold Chisels, fair quality, # 14 to 16¢**Chucks—**Beach Pat. each, \$8.00 20%
Danbury each, \$5.00, 30¢30¢5%
Morris's Adjustable, each, \$7.00, 20¢20¢5%
Syracuse, Bal. Pat. 25%
Kinner Patent Chucks 25%
Combination Lathe Chucks 40%
Drill Chucks 25%
Independent Lathe Chucks 20%
Planer Chucks 20%
Universal Lathe Chucks 20%**Churns**Molander's Star Barrel Churn, each
6 gal., \$2.60; 10 gal., \$2.75; 15 gal.,
\$3.00; 20 gal., \$3.25.
Tiffin Union, each, 5 gal. \$3.25; 7 gal.,
\$3.75; 10 gal., \$4.25.**Clamps—**Adjustable, Cincinnati 25¢10¢5%
Adjustable, Stearns's 30¢50¢10%
Barnes' Machine's Clamps 35¢
Cabinet, Sargent's 70¢10%
Carpenter's, Cincinnati 25¢10%
Garriage Makers', P. S. & W. Co. 40¢10%
Carriage Makers', Sargent's 75¢5%
Eberhard Mfg. Co. 40¢5¢10%
Joiners' Clamps, Tatum's 25¢10%
L. T. Tool Co.'s Wrought Iron 25%
Saw Clamps, see Vises, Saw Filers'
Stearns' Malleable, with Wrought Iron
Screw 75¢70¢5%
Stearns' Steel 40¢10¢40%10%
Warner's 40¢10¢40%10%**Cleavers, Butchers'—**Beatty's 40¢5¢10%
Bradley's 25¢50%
Foister Bros. 30%
New Haven Edge Tool Co.'s 40%
Nichols Bros. 30%
P. S. & W. Co. 35¢5%
Schulte, Lohr & Co. 40¢40%5%
L. & J. White 25%**Clips—**Baker Axle Clips 25¢25¢5%
Norway, Axle 60¢10¢5%
Norway Spring Bar Clips 65¢5%
Ed grade Norway Axle 70%
Steel Felloe Clips 40%
Superior Axle Clips 40%
Wrought Iron Felloe Clips 5¢
Cloth and Netting, Wire
—See Wire, &c.**Cocks, Brass—**Hardware List (Globe, Kerosene, Lever
Bibbs, Racking, &c.) 60¢20¢10%
Coffee Mills—See Mills, Coffee.**Collars, Dog—**Brass, Pope & Stevens's list 40%
Chapman Mfg. Company, new list 40%
Embossed, Gift, Pope & Stevens's list 30¢10%
Leather, Pope & Stevens's list 40%
Medford Fancy Goods Co. 40¢10¢50%**Combs, Curry—**American Curry Comb Co. 33¢40%
Fitch's 50¢10¢50%10%
Gibb's Magnetic 40%
Kohler's Hammer 40%
Kohler's Magic Oscillating 40%
Rubber, per doz., \$10.00 25%
Excelsior 50%
Starrett's 50%**Compasses, Dividers &c.**Compasses, Callipers, Dividers, 70¢10¢75%
Bemis & Call Co.'s
Dividers 65%
Callipers, Call's Patent Inside 55%
Callipers, Double 65%
Callipers, Inside or Outside 65%
Callipers, Wing 60%
Compasses 50¢5%
Excelsior 50%
Starrett's 50%**Coolers, Water—**B. & C. Co.: 2-gal., \$3.40; 3-gal., \$4.00;
4-gal., \$4.50; 6-gal., \$5.50 each 60%**Coopers' Tools—**

See Tools, Coopers'.

Cord—Sash—Braided, Crown, Drab and Fancy, #
B. 555 30%
Braided, Crown, White, # B. 504 50%
Cable Laid Italian Sash, # B. 1000 30%
Common # B. 84 to 90
Common Russia Sash, # B. 12 to 13¢
Egyptian, India Hemp, Braided 26%
India Cable Laid Sash, # B. 11 to 12¢
Massachusetts, White 22¢24%**Cotton—**Ossawaun Mills
Crown, Solid Braided White, # B. 22¢
Crown, Drab and Fancy, # B. 22¢
Braided Giant, Drab and Fancy, # B. 30%
Braided, Giant, White, # B. 20%
Patent, good quality, # B. 10 to 11¢
Patent Russia Sash, # B. 18 to 14¢**Cotton—**Barnum
Braided, Drab Cotton # B. 42¢
Braided, Italian Hemp # B. 40%
Braided, Linen # B. 56¢
Braided, White Cotton # B. 37¢
Semper Idem, Braided, White 26%
Silver Lake—
A quality, Drab, 555 25%
A quality, White, 504 50%
B quality, Drab, 555 10%
B quality, White, 304 10%
Sylvan Spring, Extra Braided, Drab, 38¢
Sylvan Spring, Extra Braided, White, 34¢**Tate's Solid Braided—**Economy White # B. 97¢
Hercules, Drab # B. 32¢
Hercules, White # B. 25¢
White Cotton Braided, fair # B. 23¢24%**Wire Picture—**Braided or Twisted 80¢100¢80%20%
Corkscrews—See Screws, Cork.**Corn Knives and Cutters**

See Knives, Corn.

Crackers, Nut—Acme
Japaned, # gro., \$30 50%
Nickel Plated, # gro. \$30 10%
Table (H. & B. Mfg. Co.) 40%
Turner & Seymour Mfg. Co. 40%**Cradles—**

Grain 50¢2¢50¢5¢5%

Crayons—White Crayons, # gross 60¢6%
Cases, 100 gr., \$3.75 to \$4.25, at factory.
D. M. Steward Mfg. Co.:
Metal Workers' # gross, \$2.50, 20¢25%
Railroad, # gross, 2.00, 20¢25%
Rolling Mill, # gross, 2.50, 20¢25%
Soapstone Pencils, # gross, 1.50, 20¢25%
See also Chalk.**Creamery Pails—See Pails, Creamery.****Crow Bars—See Bars, Crow.****Curry Combs—**

See Combs, Curry.

Cutters—Meat—American 30%
Each, # 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Enterprise 25%
Nos. 10 12 22 32 42
Each, #3 \$2.50 #4 \$3.00 #5 \$3.50
Dixon's, # doz. 40¢40¢5%
Nos. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Draw Cut, each:
Nos. 5 2 6 8
\$50 \$75 \$80 \$225 20¢25%
Hale's, # doz. 70¢70%10%
Nos. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Home No. 1, # doz. 25¢10%
Little Giant, # doz. 40¢10%50%
Nos. 305 310 312 320 322
\$36.00 \$48.00 \$44.00 \$72.00 \$68.00
Miles' Challenge, # doz. 45¢45%10%
Nos. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Triumph No. 505, # doz. \$21.00, 25¢30%
Woodruff's, # doz. 40¢40%5%
Nos. 100 150 150
\$15.00 \$18.00
Chadborn's Smoked Beef Cutter, # doz. 60¢10%
Enterprise Beef Shavers 20%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife, # gross \$21.00
Slaw Cutters, 2 Knife, # gross 30.00**Tobacco**Acme # doz., \$20.00, 40%
All Iron # doz., \$4.00
Champion # doz., \$2.00
National Lock Co.'s, # doz. \$18.00, 50¢5%
National # doz., \$12.00, 30%
Sargent's # doz., \$24.00, 60¢80%10%**Washer**

Appleton's # doz., \$16.00, 60%10%80%10%10%

Bonney'sCincinnati 30¢10%
Cincinnati 25¢10%
Johnston's # doz., \$11.00, 30%
Penny's, # doz., Pol. #14; Jap'd, \$16.65
Smith's Pat. # doz., \$12.00, 20¢10%10%
Tatum's 25¢10%**Diggers, Post Hole, &c.—**Cronk's Post Bars, # doz. \$60.00, 50¢50%50%10%
Eureka Diggers, # doz. \$10.50 to \$12.00
Fletcher Post Hole Augers, # doz. \$35.00, 20¢20%10%
Gem, Improved # doz., \$9.00 to \$10.00 net
Gibbs' Columbia # doz. \$12.00
Gibbs' Hustler # doz. \$10.00
Gibbs' Imperial # doz. \$7.50
Gibbs' National # doz. \$12.00
Gibbs' Post Hole Digger # doz. \$12.75
Kohler's Hercules # doz. \$12.00
Kohler's Invincible # doz. \$10.00
Kohler's Little Giant # doz. \$14.00
Kohler's Champion # doz. \$7.50
Kohler's Pioneer # doz. \$9.00
Ryan's # doz., \$24.00, 10%
Samson's # doz., \$34.00, 25%
Universal # doz., \$15.00
Shimer's Hollow Handle, # doz. \$24.00, 50%
Vaughan's Post Hole Auger, # doz. \$5.50 to \$9.50**Dividers—See Compasses.****Dog Collars—See Collars, Dog.****Door Checks—**

See Checks, Door.

Door Springs—

See Springs, Door.

Drawers, Money—Money Drawers, # doz. \$18 to \$20
Waddell's Improved, No. 1, # doz. \$15.00
Waddell's Improved, No. 2, # doz. \$18.00
Waddell's Comb. Cutlery Case and
Alarm Till \$12.50**Drawing Knives—**

See Knives, Drawing.

Drills and Drill Stocks—Automatic Boring Tools \$1.75 to \$1.35
Bench Drills, Stearns' 50%
Blacksmiths each \$1.75
Blacksmiths' Self-Feeding, each \$7.50, 20%
Breast, Bartholomew's each \$2.50, 25%
Breast, Millers Falls each \$3.00, 25%
Breast, P. S. & W. 40%10%
Breast, Wilson's 30%5%
Chicopee Automatic Drill 20%10%
Goodell Automatic Drills 40¢40%10%
Ratchet, Curtis & Curtis 30%
Ratchet, Ingersoll's 30%
Ratchet, Merrill's 20¢20%5%
Ratchet, Moore's Triple Action 25¢30%
Ratchet, Parker's 20¢20%5%
Ratchet, Weston's 20¢25%
Ratchet, Whitney's 20¢10%
Whitney Hand Drill, Plain, \$11.00;
Adjustable, \$12.00 20%10%**Twist Drills—**Cleveland 50¢10%10%
Diamond, W. & B. 50¢10%10%
Graham's Pat. Groove Shank, 50¢10%10%
Morse 50¢10%10%**New Process Standard**Syracuse (Metal list) 50¢10%10%
Drill Bits or Bit Stock**Drills—See Augers and Bits.****Drill Chucks—See Chucks.****Dripping Pans—**

See Pans, Dripping.

Drivers, Screw—Allard's Spiral 50%
Brace Screw Drivers 25¢10%
Buck Bros. 30%
Buck Bros.' Screw Driver Bits 27¢2%
Clark's Pat. 35¢40%
Cincinnati 25¢10%
Champion 25¢10%
Disston's 50%
Douglass Mfg. Co. 20¢20%10%
Electric Spiral 50%
Elmhurst Socket and Ratchet 40%10%
Fray's Hol. H'die Sets, No. 5, \$13.00, 45%
Gay & Parsons 35%
Goodell's Automatic 50¢40%5%
Howard-Allard 50%
Jones Reversible 40%
Knapp & Cowles 70%10%
No. 2 70%10%
No. 3 60%10%
Nos. 4 and 60, Acme and Ideal, 60¢10%
Kolb's Common Sense, # doz., \$8.00, 25%10%**Mayhew's Black Handle**Mayhew's Monarch 45¢10%
P. S. & W. 70%
Sargent & Co.'s
No. 1, Forged Blade 60¢10%10%
Nos. 20, 40 and 60 60¢40%10%
Screw Driver Bits, Farr's, # gross, \$6.25
Screw Driver Bits, # doz., 50¢75%
Stanley R. & L. Co.'s
No. 4, Varnished Handles 65¢10%
No. 86 70%10%
Stearns' 25¢10%5%
Syracuse Screw Driver Bits 80¢30¢5%
C. T. Williamson Wire Novelty Co. 50%**Egg Beaters—See Beaters, Egg.****Egg Poachers—**

See Poachers, Egg.

Electric Bell Sets—

See Bells, Electric.

Emery—No. 1 to No. 54 to Flour, OF48 gr. 150 gr. F.F.F.
Kegs, # B 4¢ 5¢ 3¢
4¢ kegs, # B 4¢ 5¢ 3¢
10¢ kegs, # B 5¢ 6¢ 3¢
10¢ cans, 10 6¢ 6¢ 5¢
in case, 10 6¢ 6¢ 5¢
10-b cans, less than 10 10¢ 10¢ 8¢**Enameled and Tinned Ware—See Ware, Hollow.****Escutcheon Pins—**

See Pins, Escutcheon.

EscutcheonsBrass Thread 60¢60%10%
Door Lock Same dis. as Door Locks.
Wood 25%**Expanded Metal—**List No. 6.
Door Mats, Galvanized 25%
Fencing, Painted Sheets 20%
Lathing 10%
Netting, Painted Sheets 20%
Panes, Painted 15%
Window Guards, Painted 15%**Extractors, Lemon Juice—**

See Squeezers, Lemon.

Fasteners, Blind—Austin & Eddy, # gr. sets \$5.50
Mackrell's, # doz. \$1.00, 20¢20%10%
Security Gravity # gr. \$7.50
Van Sand's Old Pat., \$15 # gr. 55¢10%
Van Sand's Screw Pat., \$15 # gr. 60¢10%
Zimmerman's 60%**Facts—**B. & L. Co.
West's Lock, Open and Shut Key 50%
Burnside's Red Cedar 50%
Burnside's Red Cedar, bbl. lots 50%10%
Cork Lined 70¢50¢10%
Fenn's 40%
Fenn's Cork Stops 35%
Fray's Pat. Petroleum 60%
Metallic Key, Leather Lined 60%10%
National Measuring, # doz. \$36.00, 25%10%
John Sommers'
Peerless Best Block Tin Key 40%
TX 1st quality, Cork Lined 50%
Diamond Lock 40%
Perfection, Fla. Red Cedar (in boxes) 40%
Boss Metallic Key 50%
Reliable Cork Lined 50%
O. K. Western Pattern Cork Lined 50%
No Brand, Red Cedar (in bbls.) 50%10%
Western Pattern Metal Key 40%
Self Measuring
Enterprise, # doz., \$36.00 25%10%
Lane's # doz., \$36.00 25%10%
Star, Metal Plug, new list 40%
Lockport, Metal Plug, reduced list 60%**Felice Plates—**

See Plates, Felice.

Fibre Ware—See Ware, Fibre.**Fifth Wheels—**Brewster 50¢5%
Derby and Cincinnati 45¢5%**Files—Domestic—**American 70¢70%10%
Arcade 60¢10%10%70%
G. & H. Barnett (Black Diamond) 60¢10%10%70%
Eagle 60¢10%10%70%
Nicholson Files, Rasps, &c. 60¢10%10%Nicholson (X.F.) Files 70%
Nicholson's Royal Files (Seconds) 25%
(extra prices on certain sizes.)
Other makers, best brands 70¢50¢70%10%
Fair brands 75¢75%5%
Second quality 30¢80%10%
Arcade Horse Rasps 50¢10%5%
Chelsea Horse Rasps, Hand Cut 50%10%
Horse Rasps 50%10%
McCaffrey's Horse Rasps 50¢10%5%
Trojan Horse Rasps 60%10%5%**Imported—**Butcher's Butcher's list, 20%
Stubbs' list 25¢5%**Fixtures Grindstone—**Moore's 55¢10%
P. S. & W. Co. 50%10%10%
Reading Hardware Co. 30¢10%30%10%10%
Sargent's Patent 70¢10%70%10%10%**Fluting Machines—**

See Machines, Fluting.

Fodder Squeezers—

See Squeezers, Fodder.

Forks—Hay, Manure, &c. Asso. List, 70¢70%5%
Hay, Manure, &c. Phila. List, 60¢60%10%5%
Plated, see Spoons.**Frames—**Saw—
Rod, Polished and Varnished, # doz. \$1.50, 25%
White Vermont # gro., \$9.00 to \$10.00**Screen, Window and Door—**Banana Window Screens 50¢10%
Cortland 40¢40%5%
Empire Fancy Screen Doors, # doz. \$1.15
Phillips' Window Screen Frames 50¢10%50%10%5%
Porter's Pat. Window and Door Frame, 35¢10%
Stearns' Frames and Corners 25¢25%10%
Wabash Adjustable Window Screen, 40¢5%**Warner's Screen Corner Irons, 33¢10%****Freezers, Ice Cream—**American 60%
Arcle 70%
Blissard 60%10%10%10%
Boss and Pet 60¢10%10%10%
Buffalo Champion 65%
Confectioners' Machine 50%
Crown 60%
Double Action Crown 60%
Giant 60%
Good Luck 65%
Granite State 65%
Keystone, P. D. & Co., each, \$1.50, 20%
Model 60%
Pacemaker 60%10%
Shepherd's Lightening 65%
Standard 60%
Standard Double Action 60%
Star 60%
White Mountain 60%
Zero 70%**Fruit and Jelly Presses—**

See Presses, Fruit and Jelly.

Fruit Pickers—

See Pickers, Fruit.

Fry Pans—See Pans, Fry.**Funnels**Gersdorff's Perfection, Standard and
Globe; 7 in, 1 gro., 10¢; 2

Plate..... 45¢
 Bomer's Night Hatch..... 15¢
 B. & E. Mfg. Co., list Mar. 30, 1889..... 60¢10¢70¢
 Sargent & Co., list July, 1894..... 60¢10¢70¢
 Warner's Burglar Proof..... 30¢

Elevator—

Moore's 38½¢

Padlocks—

Wrought Iron Padlocks—
 Brittan, Graham & Mathes, list Jan., 1894..... 75¢
 Mallory, Wheeler Co., list Jan. 1, 1894..... 50¢25¢
 Norwich Lock Mfg. Co., list June 10, 1891..... 50¢25¢
 Russell & Erwin Mfg. Co., list June 10, 1891..... 50¢25¢
 Sargent & Co., list January 1, 1894..... 75¢
 William Wilcox Mfg. Co., list January 1, 1894..... 75¢20¢
 Ames Sword Co. up to No. 108 incl. 50¢
 Ames Sword Co. above No. 108..... 60¢10¢
 Barnes Mfg. Co..... 40¢40¢10¢
 Champion Padlocks..... 40¢
 A. E. Deitz..... 40¢
 Eagle..... 40¢25¢
 Eureka, Eagle Lock Co..... 40¢25¢
 B. T. Fraim's Keystone Scandinavian..... 90¢25¢
 1010 line..... 90¢25¢
 120 line..... 90¢25¢
 109 line..... 70¢10¢
 225, 610 and 209 line..... 70¢
 All other numbers..... 50¢5¢
 Horseshoe..... 50¢5¢
 Hotchkiss..... 30¢
 No. 1..... 30¢
 Bomer's Nos. 0 to 91..... 30¢
 Bomer's Scandinavian, & Co., No. 100 to 505..... 15¢
 Scandinavian..... 90¢25¢
 Slaymaker, Barry & Co..... 90¢
 No. 1010 line..... 90¢
 No. 41 line..... 50¢
 No. 61 line..... 90¢
 No. 21 line..... 70¢
 No. 109 line..... 90¢40¢
 Star..... 60¢
 Yale Lock Mfg. Co.'s..... net prices

Sash, &c.—

Attwell Mfg. Co..... 25¢33½¢
 Champion Safety list January, 1893..... 70¢5¢
 Clark's No. 1, 410, No. 2, 3 gr..... 33½¢
 Common Sense, Jap'd, Cop'd and Br'ed..... gr \$4.00
 Common Sense, Nickel Plated..... gr \$10.00
 Corbin's Daisy, list Feb. 15, 1886..... 50¢
 Davis Bronze, Barnes Mfg. Co..... 38½¢
 Ferguson's..... 38½¢
 Fish (Liesche's pat.), No. 100, gr..... 48¢
 No. 105, gr..... 50¢
 Giant, list Jan. 1892..... 70¢10¢
 Hammond's Window Springs..... 40¢
 Hugunin's New Sash Locks..... 25¢25¢
 Hugunin's Sash Balances..... 25¢25¢
 Ives' Patent..... 60¢10¢10¢
 Kempshall's Gravity..... 60¢10¢10¢
 Kempshall's Model..... 60¢10¢10¢
 Monarch..... 60¢10¢10¢
 Payson's Perfect..... 60¢10¢10¢
 Reading..... 60¢10¢10¢
 Security..... 70¢
 Universal..... 60¢10¢25¢
 Victor..... 60¢10¢25¢
 Walker's..... 10¢
 Wolcott's..... 60¢10¢25¢

Lumber Tools—

See Tools, Lumber.

Lustre—

Four-ounce bottles..... 17¢
 gross..... \$17.00

Machines.

Boring—

Without Auger Upright. Angular.
 Boss, Carpenters' 3.80
 Boss, Ship Bldrs' 3.85
 Douglas..... \$5.50 \$6.75..... 50¢
 Jennings..... 5.50 6.75..... 50¢5¢
 Millers Falls..... 7.50..... 25¢
 Phillips' Patent with Auger 7.00 7.50..... 40¢10¢10¢
 Snell's, Rice's Pat 5.50 6.75..... 40¢10¢10¢

Fluting—

American, 5 in., \$5.00; 6 in., \$3.40; 7 in., \$4.50 each..... 35¢
 Combined Fluter and Sad Iron..... 30¢
 Crown, 4¼ in., \$3.50; 6 in., \$4.00; 8 in., \$5.50 each..... 35¢
 Crown Hand Fluter, No. 1, \$15.00; 2, \$12.50; 3, \$10.00; 4, \$8.25..... 35¢
 Crown Jewel, 6 in., \$3.50 each..... 35¢
 Domestic Fluter..... each, \$1.50
 Eagle, ¼-inch Rolls, \$2.15..... 35¢
 Eagle, ½-inch Rolls, \$2.85..... 35¢
 Kn x, ¼-inch Rolls..... \$3.25 each..... 35¢
 Kn x, 6-inch Rolls..... \$3.60 each..... 35¢

Holisting—

Moore's Anti-Friction Differential Pulley Block..... 20¢
 Moore's Hand Holst, with Lock Brake..... 20¢
 Moore's Rope Differential Pulley Block..... 60¢
 Harris & Reed (Teal Patent)..... 30¢
 See also Blocks.

Washing—

Fair and Square..... 30¢
 Anthony Wayne..... 30¢
 Wayne American..... 30¢
 Wayne American..... 30¢
 Western Star..... 30¢

Mallets—

B. & L. Block Co., Hickory & L. V..... 30¢10¢40¢
 Fibre Head, Stearns..... 33½¢
 Hickory..... 20¢10¢20¢10¢10¢
 Lignumvite..... 20¢10¢20¢10¢10¢

Mattocks—Regular list.

60¢10¢60¢10¢5¢

Measures—

Standard Fibreware, No. 1, peak 7 dozen, \$3.50; ¼ peak, \$3.00

Meat Cutters—

Cutters, Meat

Menders—

Hudson's Hose Menders, in set, 3 doz..... \$1.75

Hudson's Hose Bands..... gr..... \$1.25

Milk Cans—See Cans, Milk.

Mills—

Coffee—

Box and Side, list Jan. 1, 1888..... 60¢10¢
 Net prices are often made which are lower than above discount.

American, Enterprise Mfg. Co., list Jan. 17, 1893..... 20¢
 National List, Jan. 1, 1894..... 30¢
 Swift, Lane Bros..... 30¢
 Wadell's New Box Mills, Ideal Brand, New List..... 30¢60¢10¢

Mining Knives—

See Knives, Mining.

Molasses Cates—

See Cates, Molasses.

Money Drawers—

See Drawers, Money.

Mowers, Lawn—

12 in. 14 in.
 grade, \$4.00@5.25 \$4.50@6.00 \$5.00@6.75
 Good \$3.00 \$3.25 \$3.50
 Cheap 2.25 2.50 2.75

Muzzles—

Safety..... 30¢ doz, \$3.00, 25¢

Nails—

Cut and Wire. See Trade Report.

Wire Nails, Papered..... 55¢10¢5¢
 Association list, May 1, '92..... 55¢10¢5¢

Hungarian, Finishing, Upholsterers', &c. See Tacks.

Horse—

Nos. 7 8 9 10
 25¢ 23¢ 22¢ 21¢ 21¢

American..... 9¼ 9¼ 9¼ 9¼..... 40¢10¢
 Anchor..... 23¢ 21¢ 20¢ 19¢..... 35¢
 Ausable..... 28¢ 26¢ 25¢ 24¢..... 35¢

Capewell..... 19¢ 18¢ 17¢ 16¢ 15¢..... 40¢5¢
 C. B. K..... 25¢ 23¢ 22¢ 21¢..... 40¢

Champion..... 25¢ 23¢ 22¢ 21¢..... 40¢10¢
 Champlain..... 28¢ 26¢ 25¢ 24¢..... 35¢

Clinton, Fin..... 19¢ 17¢ 16¢ 15¢ 14¢..... 30¢5¢
 Empire Brand..... 11¢11¢
 Essex..... 28¢ 26¢ 25¢ 24¢..... 35¢

Lyra..... 9¼ 9¼ 9¼ 9¼..... net
 Maud S..... 26¢ 23¢ 22¢ 21¢..... 40¢10¢5¢

Northwest'n..... 25¢ 23¢ 22¢ 21¢..... 40¢10¢
 Putnam..... 23¢ 21¢ 20¢ 19¢..... 35¢

Snowden..... 9¼ 9¼ 9¼ 9¼..... net
 Standard..... 23¢ 21¢ 20¢ 19¢..... 35¢

Vulcan..... 23¢ 21¢ 20¢ 19¢..... 35¢
 Western..... 23¢ 21¢ 20¢ 19¢..... 35¢

Brass Head, Combination list..... 50¢10¢
 Brass Head, Sargent's list..... 60¢60¢10¢
 Porcelain Head, Combination list..... 40¢10¢
 Porcelain Head, Sargent's list..... 50¢10¢10¢
 Niles' Patent..... See Pullers, Nail.

Nail Pullers—See Pullers, Nail.

Nail Sets—See Sets, Nail.

Nippers—See Pliers and Nippers

Nut Crackers—See Crackers, Nut.

Nuts—List Dec. 18, 1889.

Square, 6 in.

Cold Punched..... 5.00¢ 6.10¢ off list

Hot Pressed..... 5.80¢ 6.50¢ off list

In packages of 100 lb, add 1-10¢ lb, add ¼¢ lb, net.

¼¢ lb, net.

Oakum—

Best or Government..... 30¢10¢63½¢
 Navy..... 30¢10¢43½¢
 U. S. Navy..... 30¢10¢51½¢

Oil Tanks—See Tanks, Oil.

Oilers—

Brass and Copper..... 50¢10¢50¢10¢5¢
 Zinc and Tin..... 70¢70¢10¢
 Broughton's Brass..... 50¢
 Broughton's Zinc..... 60¢
 Malleable, Hammers' Improved, No. 1, \$3.60; No. 2, \$4.40; No. 3, \$4.40..... 10¢5¢
 Malleable, Hammers' Old Pattern, same list..... 50¢
 Olmstead's Brass and Copper..... 50¢
 Olmstead's Tin and Zinc..... 60¢
 Prior's Pat. or "Paragon" Brass..... 70¢
 Prior's Pat. or "Paragon" Zinc..... 70¢
 Steel, Draper & Williams..... 50¢
 Wilmot & Hobbs Mfg. Co., Steel Anti-Rust..... 60¢

Openers, Can—

American..... gr gross \$1.75@2.20
 Champion..... 30¢2.00..... 50¢
 Domestic..... 30¢2.00..... 45¢
 Duplex..... 30¢2.00..... 45¢
 Eureka..... 30¢2.00..... 45¢
 Excelsior, No. 1 \$2.50; No. 2, \$1.50..... 40¢
 French, No. 4..... 30¢2.25, 55¢60¢
 Iron Handle, No. 5..... gr \$6.00, 45¢60¢
 Lyman's..... 30¢3.75, 25¢
 Messenger's Comet..... 30¢3.00, 25¢
 Sardinia Scissors..... 30¢2.75@3.00
 Sprague, No. 1, 65¢; 2, 60¢; 3, 65¢; Star..... 30¢2.75
 Streeter's..... 30¢
 Sensible, Japanned, per doz..... 60¢
 Sensible, Nickel, per doz..... 70¢
 Surprise, per doz..... 25¢
 New Sprague, Metallic Handle, per doz..... 60¢
 New Sprague, Wood Handle, per doz..... 60¢
 Universal..... 30¢3.00..... 55¢5¢
 World's Best gr gross, No. 1, \$12.00; No. 2, \$24.00; No. 3, \$36.00..... 60¢10¢

Packing, Steam—

Rubber—

Standard, fair quality..... 70¢10¢75¢
 Inferior quality..... 75¢10¢80¢
 Extra..... 80¢5¢90¢10¢80¢
 Jenkins' Standard..... 80¢..... 25¢25¢
 R. Y. B. & P. Co., Double Diamond..... 60¢
 N. Y. B. & P. Co., Salamander..... 45¢
 N. Y. B. & P. Co., Carbon..... 70¢5¢

Miscellaneous—

American Packing..... 9¼10¢10¢
 Cotton Packing..... 14¢15¢
 Italian Packing..... 12¢13¢
 Jute..... 6¢7¢
 Russia Packing..... 13¢14¢

Palls—

Creamey—
 S. S. & Co.: 18-qt., \$7.00; 20-qt., \$7.25
 3 doz..... 5¢

Galvanized Palls—

Light..... \$2.00@2.25 \$2.25@2.50
 Heavy..... 2.25@2.50 2.50@2.75
 10 Quart..... 2.25@2.50 2.50@2.75
 12 Quart..... 2.50@2.75 2.75@3.00
 14 Quart..... 2.50@2.75 2.75@3.00

Calvanized Buckets—

Fire..... \$2.50@3.75
 10 Quart..... 2.75@3.00 \$2.25@2.50
 12 Quart..... 3.00@3.25 2.50@2.75

Indurated Fiber Ware

Fire Pails, deep..... doz \$4.80
 Fire Pails, round bottom..... doz \$5.40
 Milk, 14 qt..... doz \$5.40
 Stable, 14 qt..... doz \$5.40
 Star Pails, 12 qt..... doz \$4.20

Standard Fiber Ware

Buggy Pails..... \$3.00
 Chamber Pails, 14 qt..... 6.00 \$7.00
 Dairy Pails, 14 qt..... 3.75 4.25
 Fire Pails, No. 1, 12 qt, doz 3.75
 Fire Pails, No. 2, 14 qt, doz 4.25
 Horse Pails..... 4.00
 Sugar Jars (bal. trap)..... 7.50 8.50
 Slop Pails..... 3.75 5.25
 Water Pails, 12 qt, doz 3.00 3.75

Pans—

Dripping—
 Large sizes..... 5¢
 Small sizes..... 5¢
 Silver & Co. (Covered)..... 40¢

Fry—

Standard List:
 No..... 1 2 3 4
 No..... \$3.00 \$3.75 \$4.25 4.75 \$5.25
 No..... \$5.00 \$7.00 \$8.00 \$9.00
 Polished, regular goods..... 75¢75¢10¢
 Acme Fry Pans..... 60¢

Dust—

Steel Edge, No. 1..... doz \$1.75

Roasting and Baking—

Columbian, S. S. & Co.: Nos. 10, \$2; 20, \$2.25; 30, \$2.50 each..... 60¢10¢

Paper and Cloth—

Sand and Emery—
 List April 19, 1886..... 60¢10¢60¢
 Sibley's Emery and Crocus Cloth..... 30¢

Parers—

Apple—
 Advance..... doz \$4.50
 Baldwin..... doz 5.00
 Bonanza..... each 5.00
 Bonanza..... each 5.50
 Dandy..... each 7.50
 Bellipse..... doz 4.00
 Eureka, 1888..... each 16.00
 Family Bay State..... doz 12.00
 Favorite..... doz 4.75
 Gold Medal..... doz 4.00
 Improved Bay State..... doz 27.00@30.00
 Little Star..... doz 4.00
 Monarch..... doz 13.50
 New Lightning..... doz 5.50
 Orlole..... doz 4.00
 Penn..... doz 3.00
 Reading 72..... doz 4.00
 Reading 78..... doz 7.00
 Rocking Table..... doz 5.50
 Turn Table..... doz 4.50
 Victor..... doz 13.50
 Waverly..... doz 3.75
 White Mountain..... doz 4.00

Potato—

Antrim Combination..... doz \$5.50
 Saratoga..... doz \$5.50
 White Mountain..... doz \$4.50

Pencils, Soapstone—

See Crayons.

Pickers, Fruit—

Prize Fruit Pickers..... 50¢

Picks—

Railroad or Adze Eye, 5 to 6, \$12.00; 6 to 7, \$13.00..... 60¢10¢10¢70¢

Picture Nails—

See Nails, Picture.

Pinking Irons—

See Irons, Pinking.

Pins—

Bow—
 Humason, Beckley & Co.'s..... 70¢7½¢10¢
 Peck, Stow & W..... 60¢60¢10¢
 Sargent & Co.'s, \$17 and \$18..... 60¢10¢60¢10¢10¢

Escutcheon—

Brass..... 70¢
 Iron, list Nov. 11, 1885..... 75¢

Pipe, Wrought Iron—

List April 13, 1893.
 1¼ and under, Plain, 57½¢10¢10¢10¢5¢
 1¼ and under Galv..... 50¢10¢10¢10¢5¢
 1¼ and over, Plain..... 67½¢10¢10¢10¢5¢
 1¼ and over Galv..... 57½¢10¢10¢10¢5¢
 Boiler Tubes, list Oct. 24, 1892..... 65¢10¢10¢10¢5¢
 Casing, list Nov. 18, 1892..... 62½¢10¢10¢10¢5¢
 Cold Drawn Seamless Steel Tubing..... 50¢
 Inserted Joints Casing, list Nov. 18, 1892..... 47½¢10¢10¢10¢5¢
 Steel Boiler Tubes..... 27½¢10¢10¢10¢5¢

Planes and Plane Irons—

Wood Planes—
 Molding..... 50¢10¢
 Bench, First quality..... 55¢10¢
 Bench, Second quality..... 60¢10¢10¢
 Bailey's (Stanley R. & L. Co.)..... 50¢10¢

Iron Planes—

Bailey's (Stanley R. & L. Co.)..... 50¢10¢
 Birmingham Plane Co..... 60¢10¢60¢10¢10¢
 Madison's Iron Planes..... 60¢10¢60¢10¢10¢
 Day's Iron Planes..... 55¢50¢5¢
 Gage Tool Co.'s Self-Setting..... 35¢
 Miscellaneous Planes (Stanley R. & L. Co.)..... 25¢10¢
 Sargent's..... 67½¢10¢10¢10¢5¢
 Standard Tool Co..... 60¢10¢10¢10¢10¢
 Stearns' Iron Planes..... 60¢10¢50¢10¢5¢

Plane Irons—

Aburn Thistle..... 80¢10¢90¢10¢10¢
 Buck Bros..... 30¢10¢30¢10¢10¢
 Butcher's..... \$5.00@5.55 to 5.00
 Ohio..... 30¢10¢30¢10¢10¢
 Sandusky..... 30¢10¢30¢10¢10¢
 Stanley R. & L. Co..... 50¢10¢
 L. & J. White..... 30¢10¢30¢10¢10¢

Plates—

Felice..... 6¢60¢4¢

Pliers and Nippers—

Burton's Patent..... 60¢
 Carrow's Pat. Wire Cutters..... 20¢
 Cronk's 8 in., \$15.00; 10 in..... 20¢ 60¢
 Cronk's Button Pattern..... 60¢10¢25¢
 Cronk's Carrier Pliers..... 60¢60¢5¢
 Eureka Pliers and Nippers..... 40¢
 Gas Pliers..... 40¢
 Gas Pliers, Custer's Nickel Plated..... 60¢5¢
 Hall's Nippers, No. 2, 5 in., \$18.50; No. 4, 7 in., \$21.00 doz..... 40¢10¢
 Hall's Pliers..... 65¢
 Humason & Beckley Mfg. Co. 50¢60¢10¢
 Lindsay's Giant, No. 55, 5 in., doz..... 38½¢
 Morrill's Parallel, doz \$12.00..... 80¢5¢
 P. S. & W. Cast Steel..... 50¢50¢5¢
 P. S. & W. Timmers' Cutting Nippers, add 8¢..... 25¢
 Russell's Parallel..... 40¢
 Waterbury Nippers, 5 in., doz \$7.50, 33½¢

Plumbs and Levels

Regular List..... 75¢10¢80¢
 Cook's..... 40¢10¢
 Davis Inclinometers..... 10¢10¢
 Davis Iron Levels..... 30¢
 Disston's..... 70¢10¢70¢10¢10¢
 Pocket Levels..... 20¢10¢
 Stanley's Duplex..... 20¢10¢
 Stanley's Handy..... 20¢10¢

Poachers, Egg—

Buffalo Steam Egg Poachers, doz..... \$3.00
 No. 1, \$6.00; No. 2, \$9.00..... 38½¢
 Silver & Co., 6-Ring, doz \$4.00; 3-R

Covered Spring.....	60&10&58
Covert.....	50&10&58
Covert, New Patent.....	50&10&58

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Silver Plated, Hollow-
4 mo. or 5 1/2 gal in 50 days.
Meriden Britannia Co. 40¢
Reed & Barton 40¢
Rogers & Brother 40¢
Simpson, Hall, Miller & Co. 40¢
Hardford Silver Plate Co. 40¢
William Rogers Mfg. Co. 40¢

Washers-
Size hole. 5-16 1/4 1/2 3/4 1 1/4 1 1/2 1 3/4 2 1/4 3 1/4 4 1/4 5 1/4 6 1/4 7 1/4 8 1/4 9 1/4 10 1/4 11 1/4 12 1/4 13 1/4 14 1/4 15 1/4 16 1/4 17 1/4 18 1/4 19 1/4 20 1/4 21 1/4 22 1/4 23 1/4 24 1/4 25 1/4 26 1/4 27 1/4 28 1/4 29 1/4 30 1/4 31 1/4 32 1/4 33 1/4 34 1/4 35 1/4 36 1/4 37 1/4 38 1/4 39 1/4 40 1/4 41 1/4 42 1/4 43 1/4 44 1/4 45 1/4 46 1/4 47 1/4 48 1/4 49 1/4 50 1/4 51 1/4 52 1/4 53 1/4 54 1/4 55 1/4 56 1/4 57 1/4 58 1/4 59 1/4 60 1/4 61 1/4 62 1/4 63 1/4 64 1/4 65 1/4 66 1/4 67 1/4 68 1/4 69 1/4 70 1/4 71 1/4 72 1/4 73 1/4 74 1/4 75 1/4 76 1/4 77 1/4 78 1/4 79 1/4 80 1/4 81 1/4 82 1/4 83 1/4 84 1/4 85 1/4 86 1/4 87 1/4 88 1/4 89 1/4 90 1/4 91 1/4 92 1/4 93 1/4 94 1/4 95 1/4 96 1/4 97 1/4 98 1/4 99 1/4 100 1/4 101 1/4 102 1/4 103 1/4 104 1/4 105 1/4 106 1/4 107 1/4 108 1/4 109 1/4 110 1/4 111 1/4 112 1/4 113 1/4 114 1/4 115 1/4 116 1/4 117 1/4 118 1/4 119 1/4 120 1/4 121 1/4 122 1/4 123 1/4 124 1/4 125 1/4 126 1/4 127 1/4 128 1/4 129 1/4 130 1/4 131 1/4 132 1/4 133 1/4 134 1/4 135 1/4 136 1/4 137 1/4 138 1/4 139 1/4 140 1/4 141 1/4 142 1/4 143 1/4 144 1/4 145 1/4 146 1/4 147 1/4 148 1/4 149 1/4 150 1/4 151 1/4 152 1/4 153 1/4 154 1/4 155 1/4 156 1/4 157 1/4 158 1/4 159 1/4 160 1/4 161 1/4 162 1/4 163 1/4 164 1/4 165 1/4 166 1/4 167 1/4 168 1/4 169 1/4 170 1/4 171 1/4 172 1/4 173 1/4 174 1/4 175 1/4 176 1/4 177 1/4 178 1/4 179 1/4 180 1/4 181 1/4 182 1/4 183 1/4 184 1/4 185 1/4 186 1/4 187 1/4 188 1/4 189 1/4 190 1/4 191 1/4 192 1/4 193 1/4 194 1/4 195 1/4 196 1/4 197 1/4 198 1/4 199 1/4 200 1/4 201 1/4 202 1/4 203 1/4 204 1/4 205 1/4 206 1/4 207 1/4 208 1/4 209 1/4 210 1/4 211 1/4 212 1/4 213 1/4 214 1/4 215 1/4 216 1/4 217 1/4 218 1/4 219 1/4 220 1/4 221 1/4 222 1/4 223 1/4 224 1/4 225 1/4 226 1/4 227 1/4 228 1/4 229 1/4 230 1/4 231 1/4 232 1/4 233 1/4 234 1/4 235 1/4 236 1/4 237 1/4 238 1/4 239 1/4 240 1/4 241 1/4 242 1/4 243 1/4 244 1/4 245 1/4 246 1/4 247 1/4 248 1/4 249 1/4 250 1/4 251 1/4 252 1/4 253 1/4 254 1/4 255 1/4 256 1/4 257 1/4 258 1/4 259 1/4 260 1/4 261 1/4 262 1/4 263 1/4 264 1/4 265 1/4 266 1/4 267 1/4 268 1/4 269 1/4 270 1/4 271 1/4 272 1/4 273 1/4 274 1/4 275 1/4 276 1/4 277 1/4 278 1/4 279 1/4 280 1/4 281 1/4 282 1/4 283 1/4 284 1/4 285 1/4 286 1/4 287 1/4 288 1/4 289 1/4 290 1/4 291 1/4 292 1/4 293 1/4 294 1/4 295 1/4 296 1/4 297 1/4 298 1/4 299 1/4 300 1/4 301 1/4 302 1/4 303 1/4 304 1/4 305 1/4 306 1/4 307 1/4 308 1/4 309 1/4 310 1/4 311 1/4 312 1/4 313 1/4 314 1/4 315 1/4 316 1/4 317 1/4 318 1/4 319 1/4 320 1/4 321 1/4 322 1/4 323 1/4 324 1/4 325 1/4 326 1/4 327 1/4 328 1/4 329 1/4 330 1/4 331 1/4 332 1/4 333 1/4 334 1/4 335 1/4 336 1/4 337 1/4 338 1/4 339 1/4 340 1/4 341 1/4 342 1/4 343 1/4 344 1/4 345 1/4 346 1/4 347 1/4 348 1/4 349 1/4 350 1/4 351 1/4 352 1/4 353 1/4 354 1/4 355 1/4 356 1/4 357 1/4 358 1/4 359 1/4 360 1/4 361 1/4 362 1/4 363 1/4 364 1/4 365 1/4 366 1/4 367 1/4 368 1/4 369 1/4 370 1/4 371 1/4 372 1/4 373 1/4 374 1/4 375 1/4 376 1/4 377 1/4 378 1/4 379 1/4 380 1/4 381 1/4 382 1/4 383 1/4 384 1/4 385 1/4 386 1/4 387 1/4 388 1/4 389 1/4 390 1/4 391 1/4 392 1/4 393 1/4 394 1/4 395 1/4 396 1/4 397 1/4 398 1/4 399 1/4 400 1/4 401 1/4 402 1/4 403 1/4 404 1/4 405 1/4 406 1/4 407 1/4 408 1/4 409 1/4 410 1/4 411 1/4 412 1/4 413 1/4 414 1/4 415 1/4 416 1/4 417 1/4 418 1/4 419 1/4 420 1/4 421 1/4 422 1/4 423 1/4 424 1/4 425 1/4 426 1/4 427 1/4 428 1/4 429 1/4 430 1/4 431 1/4 432 1/4 433 1/4 434 1/4 435 1/4 436 1/4 437 1/4 438 1/4 439 1/4 440 1/4 441 1/4 442 1/4 443 1/4 444 1/4 445 1/4 446 1/4 447 1/4 448 1/4 449 1/4 450 1/4 451 1/4 452 1/4 453 1/4 454 1/4 455 1/4 456 1/4 457 1/4 458 1/4 459 1/4 460 1/4 461 1/4 462 1/4 463 1/4 464 1/4 465 1/4 466 1/4 467 1/4 468 1/4 469 1/4 470 1/4 471 1/4 472 1/4 473 1/4 474 1/4 475 1/4 476 1/4 477 1/4 478 1/4 479 1/4 480 1/4 481 1/4 482 1/4 483 1/4 484 1/4 485 1/4 486 1/4 487 1/4 488 1/4 489 1/4 490 1/4 491 1/4 492 1/4 493 1/4 494 1/4 495 1/4 496 1/4 497 1/4 498 1/4 499 1/4 500 1/4 501 1/4 502 1/4 503 1/4 504 1/4 505 1/4 506 1/4 507 1/4 508 1/4 509 1/4 510 1/4 511 1/4 512 1/4 513 1/4 514 1/4 515 1/4 516 1/4 517 1/4 518 1/4 519 1/4 520 1/4 521 1/4 522 1/4 523 1/4 524 1/4 525 1/4 526 1/4 527 1/4 528 1/4 529 1/4 530 1/4 531 1/4 532 1/4 533 1/4 534 1/4 535 1/4 536 1/4 537 1/4 538 1/4 539 1/4 540 1/4 541 1/4 542 1/4 543 1/4 544 1/4 545 1/4 546 1/4 547 1/4 548 1/4 549 1/4 550 1/4 551 1/4 552 1/4 553 1/4 554 1/4 555 1/4 556 1/4 557 1/4 558 1/4 559 1/4 560 1/4 561 1/4 562 1/4 563 1/4 564 1/4 565 1/4 566 1/4 567 1/4 568 1/4 569 1/4 570 1/4 571 1/4 572 1/4 573 1/4 574 1/4 575 1/4 576 1/4 577 1/4 578 1/4 579 1/4 580 1/4 581 1/4 582 1/4 583 1/4 584 1/4 585 1/4 586 1/4 587 1/4 588 1/4 589 1/4 590 1/4 591 1/4 592 1/4 593 1/4 594 1/4 595 1/4 596 1/4 597 1/4 598 1/4 599 1/4 600 1/4 601 1/4 602 1/4 603 1/4 604 1/4 605 1/4 606 1/4 607 1/4 608 1/4 609 1/4 610 1/4 611 1/4 612 1/4 613 1/4 614 1/4 615 1/4 616 1/4 617 1/4 618 1/4 619 1/4 620 1/4 621 1/4 622 1/4 623 1/4 624 1/4 625 1/4 626 1/4 627 1/4 628 1/4 629 1/4 630 1/4 631 1/4 632 1/4 633 1/4 634 1/4 635 1/4 636 1/4 637 1/4 638 1/4 639 1/4 640 1/4 641 1/4 642 1/4 643 1/4 644 1/4 645 1/4 646 1/4 647 1/4 648 1/4 649 1/4 650 1/4 651 1/4 652 1/4 653 1/4 654 1/4 655 1/4 656 1/4 657 1/4 658 1/4 659 1/4 660 1/4 661 1/4 662 1/4 663 1/4 664 1/4 665 1/4 666 1/4 667 1/4 668 1/4 669 1/4 670 1/4 671 1/4 672 1/4 673 1/4 674 1/4 675 1/4 676 1/4 677 1/4 678 1/4 679 1/4 680 1/4 681 1/4 682 1/4 683 1/4 684 1/4 685 1/4 686 1/4 687 1/4 688 1/4 689 1/4 690 1/4 691 1/4 692 1/4 693 1/4 694 1/4 695 1/4 696 1/4 697 1/4 698 1/4 699 1/4 700 1/4 701 1/4 702 1/4 703 1/4 704 1/4 705 1/4 706 1/4 707 1/4 708 1/4 709 1/4 710 1/4 711 1/4 712 1/4 713 1/4 714 1/4 715 1/4 716 1/4 717 1/4 718 1/4 719 1/4 720 1/4 721 1/4 722 1/4 723 1/4 724 1/4 725 1/4 726 1/4 727 1/4 728 1/4 729 1/4 730 1/4 731 1/4 732 1/4 733 1/4 734 1/4 735 1/4 736 1/4 737 1/4 738 1/4 739 1/4 740 1/4 741 1/4 742 1/4 743 1/4 744 1/4 745 1/4 746 1/4 747 1/4 748 1/4 749 1/4 750 1/4 751 1/4 752 1/4 753 1/4 754 1/4 755 1/4 756 1/4 757 1/4 758 1/4 759 1/4 760 1/4 761 1/4 762 1/4 763 1/4 764 1/4 765 1/4 766 1/4 767 1/4 768 1/4 769 1/4 770 1/4 771 1/4 772 1/4 773 1/4 774 1/4 775 1/4 776 1/4 777 1/4 778 1/4 779 1/4 780 1/4 781 1/4 782 1/4 783 1/4 784 1/4 785 1/4 786 1/4 787 1/4 788 1/4 789 1/4 790 1/4 791 1/4 792 1/4 793 1/4 794 1/4 795 1/4 796 1/4 797 1/4 798 1/4 799 1/4 800 1/4 801 1/4 802 1/4 803 1/4 804 1/4 805 1/4 806 1/4 807 1/4 808 1/4 809 1/4 810 1/4 811 1/4 812 1/4 813 1/4 814 1/4 815 1/4 816 1/4 817 1/4 818 1/4 819 1/4 820 1/4 821 1/4 822 1/4 823 1/4 824 1/4 825 1/4 826 1/4 827 1/4 828 1/4 829 1/4 830 1/4 831 1/4 832 1/4 833 1/4 834 1/4 835 1/4 836 1/4 837 1/4 838 1/4 839 1/4 840 1/4 841 1/4 842 1/4 843 1/4 844 1/4 845 1/4 846 1/4 847 1/4 848 1/4 849 1/4 850 1/4 851 1/4 852 1/4 853 1/4 854 1/4 855 1/4 856 1/4 857 1/4 858 1/4 859 1/4 860 1/4 861 1/4 862 1/4 863 1/4 864 1/4 865 1/4 866 1/4 867 1/4 868 1/4 869 1/4 870 1/4 871 1/4 872 1/4 873 1/4 874 1/4 875 1/4 876 1/4 877 1/4 878 1/4 879 1/4 880 1/4 881 1/4 882 1/4 883 1/4 884 1/4 885 1/4 886 1/4 887 1/4 888 1/4 889 1/4 890 1/4 891 1/4 892 1/4 893 1/4 894 1/4 895 1/4 896 1/4 897 1/4 898 1/4 899 1/4 900 1/4 901 1/4 902 1/4 903 1/4 904 1/4 905 1/4 906 1/4 907 1/4 908 1/4 909 1/4 910 1/4 911 1/4 912 1/4 913 1/4 914 1/4 915 1/4 916 1/4 917 1/4 918 1/4 919 1/4 920 1/4 921 1/4 922 1/4 923 1/4 924 1/4 925 1/4 926 1/4 927 1/4 928 1/4 929 1/4 930 1/4 931 1/4 932 1/4 933 1/4 934 1/4 935 1/4 936 1/4 937 1/4 938 1/4 939 1/4 940 1/4 941 1/4 942 1/4 943 1/4 944 1/4 945 1/4 946 1/4 947 1/4 948 1/4 949 1/4 950 1/4 951 1/4 952 1/4 953 1/4 954 1/4 955 1/4 956 1/4 957 1/4 958 1/4 959 1/4 960 1/4 961 1/4 962 1/4 963 1/4 964 1/4 965 1/4 966 1/4 967 1/4 968 1/4 969 1/4 970 1/4 971 1/4 972 1/4 973 1/4 974 1/4 975 1/4 976 1/4 977 1/4 978 1/4 979 1/4 980 1/4 981 1/4 982 1/4 983 1/4 984 1/4 985 1/4 986 1/4 987 1/4 988 1/4 989 1/4 990 1/4 991 1/4 992 1/4 993 1/4 994 1/4 995 1/4 996 1/4 997 1/4 998 1/4 999 1/4 1000 1/4

Whips
American Whip Co.: Length. 4 1/2 5 5 1/2 6 6 1/2 7 7 1/2 8 ft.
X. L. Whalebone Drivins. \$18.00 20.00 22.00 24.00 27.00 30.00 33.00 36.00
Eureka, Two-thirds Whalebone. 15.00 16.50 18.00 20.00
Bull Bone, Half-length Whale bone. 11.00 12.00 13.00 15.00
American Standard. 8.00 8.50 9.50 10.50 12.00 13.50 15.00 16.50
True Grip, Raw Hide Center. 6.00 6.00 6.50 7.00 7.50 8.00 8.50 9.00
New Name, Stocked Java, Black and Wine Colors. 6.00
Americus, 93 Pen Whip. 6.00
Gents' Light Driving No. 111. 6.00
Gents' Light Driving No. 106. 5.00
Hand-made Stocked Java No. 109. 8.75 4.00
A large variety of cheaper grades. \$2.00 to \$3.00
Team Whips. \$2.00 to \$3.00
Toy Whips. \$2.00 to \$3.00
Hardware Assortment, 10 American, 75 Whips for \$50.00.

Wire and Wire Goods-Iron Market.
Br. & Ann., Nos. 0 to 18. 75¢ to 1.02 80¢
Cop'd, Nos. 0 to 18. 75¢ to 1.02 80¢
Galv., Nos. 0 to 18. 75¢ to 1.02 80¢
Tin'd, Tin'd, Nos. 0 to 18. 75¢ to 1.02 80¢
Extra 5¢ to 10¢ often given and low net prices often large lots.
Br. and Ann'd, Nos. 16 to 18. 82¢ to 84¢
Nos. 19 to 22. 82¢ to 84¢
Nos. 23 to 26. 82¢ to 84¢
Annealed Wire on Spools. 40¢ to 42¢
Brass, list Jan. 18, 1894. 40¢ to 42¢
Cast Steel Wire. 50¢
Copper, list Jan. 18, 1894. 40¢ to 42¢

Galvanized Fence. 75¢ to 1.05
Main's An'led & Tin'd on Spools. 60¢ to 65¢
Main's Brass and Cop. on Spools. 50¢ to 55¢
Steel Music Wire, 12 to 30, imported. 40¢ to 45¢
Stubs' Steel Wire. \$6.00 to \$2.30
Tate's Spooled, Tin'd & Annealed. 60¢ to 65¢
Tate's Spooled Cop. and Brass. 50¢
Thinned Broom Wire, 18 to 21, # 1. 40¢
Wire Picture Cord, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods-
Standard list. 90¢ to 90¢ 15¢

Wire Cloth and Netting-
Galvanized Wire Netting. 80¢ to 80¢ 10¢ 5¢
Painted Screen Cloth # 100 ft. \$1.45 to \$1.60

Wire Barb-
See Trade Report.

Wire Rope-See Ropes, Wires.

Wrenches-
American Adjustable. 40¢ to 40¢ 10¢
Barter's Adjustable "S". 40¢ to 40¢ 50¢
Barker's Diagonal. 60¢ to 60¢ 10¢
Coe's Genuine. 50¢ to 50¢ 10¢
Coe's "Mechanics". 50¢ to 50¢ 10¢
Girard Standard. 65¢ to 65¢ 10¢
Lamson & Sessions' Engineers'. 60¢ to 60¢ 10¢
Lamson & Sessions' Standard. 70¢ to 70¢ 10¢
Girard Agricultural. 75¢ to 75¢ 10¢
P. S. & W. Agricultural. 80¢ to 80¢ 10¢
W. & B. Diamond. 50¢ to 50¢ 10¢
Acme, Bright. 50¢ to 50¢ 10¢

Acme, Nickel. 40¢ to 40¢ 5¢
Alken's Pocket (Bright). 32.50¢ to 32.50¢
Alligator. 60¢ to 60¢ 10¢
Always Ready. 33 1/2¢ to 33 1/2¢ 10¢ to 40¢ 5¢

Bemis & Call's:
Adjustable S. 35¢ to 35¢
Brigg's Pattern. 30¢ to 30¢ 10¢
Combination Black. 40¢ to 40¢ 10¢
Combination Bright. 40¢ to 40¢ 10¢
Cylinder or Gas Pipe. 45¢ to 45¢
Extra Heavy. 45¢ to 45¢
Merrick's Pattern. 45¢
No. 8 Pipe Bright. 55¢
Bit Wrench, Adj., Tatum's. \$2.25. 25¢ to 10¢

Boardman's
Olefinnati Brace Wrenches. 30¢ to 30¢ 5¢
Diamond Steel. 55¢ to 55¢
Donohue's Engineer. 20¢ to 20¢ 10¢
Eagle. 50¢ to 50¢ 10¢
Hercules. 70¢ to 70¢ 10¢
Tate's Vise Wrench. 55¢ to 55¢ 10¢
Tatum's Brace. 25¢ to 25¢
The Favorite Ratchet. # 100 ft. 40¢ to 40¢ 5¢
Walker's. 55¢ to 55¢
Webster's Pat. Combination. 25¢

Wringers, Clothes-
In lots of less than one dozen.
Am. Wringer Co.'s list July 2, '94. 2¢ cash
Colby Wringer Co., list May 1, '94. 2¢ cash
Lorrell Mfg. Co., list July 2, 1892. 2¢ cash
Peerless Mfg. Co., list Feb. 1892. 2¢ cash
National Wringer & Mfg. Co., list June 1, 1892. 2¢ cash

Wrought Goods-
Staples, Hooks, &c., list, March 17, 1892. 85¢ to 25¢ 90¢

Paints, Oils and Colors.—Wholesale Prices.

Animal and Vegetable Oils-

Linseed, City, raw. per gal. 50 @
Linseed, City, boiled. 53 @
Linseed, Western, raw. 48 @ 50
Lard, City, Extra Winter. 68 @ 70
Lard, City, Prime. 65 @ 67
Lard, City, No. 1. 43 @ 45
Lard, City, No. 2. 43 @ 45
Lard, Western, prime. 63 @ 65
Cotton-seed, Crude, prime. 29 @
Cotton-seed, Crude, off grades. 26 @ 28
Cotton-seed, Summer Yellow, prime. 34 @ 34 1/2
Cotton-seed, Summer Yellow, off grades. 32 @ 33
Sperm, Crude. 58 @ 60
Sperm, Natural Spring. 58 @ 60
Sperm, Bleached Spring. 63 @ 65
Sperm, Natural Winter. 65 @ 67
Sperm, Bleached Winter. 70 @
Whale, Crude. 42 @
Whale, Natural Winter. 42 @
Whale, Bleached Winter. 44 @
Whale, Extra Bleached. 46 @ 47
Sea Elephant, Bleached Winter. 21 @ 22
Menhaden, Crude, Southern. 21 @ 22
Menhaden, Crude, Northern. 25 @ 26
Menhaden, Light Pressed. 33 @ 34
Menhaden, Bleached Winter. 35 @ 36
Menhaden, Extra Bleached. 52 @ 53
Tallow, City, prime. 50 @ 51
Tallow, Western, prime. 50 @ 51
Cocoanut, Ceylon. 74 @ 75
Cocoanut, Coch. 74 @ 75
Cod, Domestic. 30 @ 32
Cod, Foreign. 30 @ 32
Red Elaine. 35 @ 38
Red Saponified. 44 @ 45
Bank. 25 @ 26
Straits. 25 @ 26
Olive, Italian, bbls. 53 @ 54
Neatsfoot, prime. 60 @ 62
Palm, prime, Lagos. 49 @ 50

Mineral Oils-

Black, 20 gravity, 25 @ 30
cold test. 0 3/4 @ 7 1/4
Black, 20 gravity, 15 cold test. 7 @ 8
Black, 20 gravity, summer. 5 1/4 @ 6 1/4

Cylinder light, filtered. 12 @ 16
Cylinder, dark, filtered. 10 @ 13
Paraffine, 23 1/2 @ 24 gravity. 11 @ 12
Paraffine, 25 gravity. 9 1/2 @ 10 1/2
Paraffine, 28 gravity. 7 1/2 @ 8 1/2
Paraffine, red. 9 1/2 @ 10 1/2

Paints and Colors-

Barytes, Foreign, 10 ton. \$22.00 @ 24.00
Barytes, Amer. floated. 20.00 @ 22.00
Barytes, Amer. No. 1. 16.00 @ 18.00
Barytes, Amer. No. 2. 13.00 @ 15.00
Barytes, Amer. No. 3. 11.00 @ 12.00
Blue, Celestial. 8 @ 8
Blue, Chinese. 40 @ 50
Blue, Prussian. 25 @ 40
Blue, Ultramarine. 8 @ 25
Brown, Spanish. 3 @ 1
Brown, Vandike, Amer. 3 @ 3
Brown, Vandike, English. 6 @ 8
Carmine, No. 40, in bulk. 2.00 @
Carmine, No. 40, in boxes or barrels. 2.10 @
Carmine, No. 40, in ounce bottles. 3.00 @
Chalk, in bulk. 1.75 @ 2.00
Chalk, in 100 lb. 33 @ 40
China Clay, English. 10 @ 13
Cobalt Oxide, prep'd. 9.00 @ 11.00
Cobalt Oxide, black. 1.90 @
Cobalt Oxide, black,

SEPTEMBER 26, 1894.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

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